
FINAL

SUBSURFACE SITE INVESTIGATION REPORT

For

A3 SITE UNDERGROUND STORAGE TANK

**NAVAL AIR STATION WHIDBEY ISLAND
OAK HARBOR, WASHINGTON**

September 2015

Prepared for



**Naval Facilities Engineering Command Northwest
Oak Harbor, Washington**

Prepared Under

Contract N62473-12-D-2012

Task Order JP01

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Prepared by



**Multimedia Environmental Compliance Group
9177 Sky Park Court
San Diego CA 92123-4341
(858) 278-3600**

MMEC Group Project 5023-14-JP01

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REVIEW AND APPROVAL

Project Manager:



Kevin Olness, P.G. #8950
MMEC Group

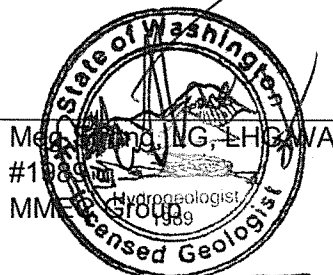
(412) 446-3171

Phone

9/17/2015

Date

Principal Geologist:



Margaret J. Strong, P.G. #1989
Hydrogeologist
MMEC Group

(425) 368-0966

Phone

9/17/2015

Date

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EXECUTIVE SUMMARY

This report presents the site history, investigation approach, data evaluation, conclusions, and recommendations for the Site Investigation (SI) conducted to evaluate the potential impacts of lead, total petroleum hydrocarbons (TPH), and volatile organic compounds (VOCs) to soil and groundwater resulting from an underground storage tank (UST) release at an undeveloped lot on the northwestern corner of Ault Field Road and Langley Boulevard at Naval Air Station (NAS) Whidbey Island, Oak Harbor, Washington (Figure 1). The site is referred to as A3 Site UST because the tank was discovered during a construction project for an A3 Airplane Memorial. This work is being performed under Naval Facilities Engineering Command Northwest (NAVFAC NW) Contract Number N62473-12-D-2012, Task Order Number JP01, by the Multimedia Environmental Compliance Group (MMEC Group), which consists of joint venture members KMEA and Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler). The purpose of this SI report is to document activities performed as part of the initial investigation of A3 Site UST.

A 4,000-gallon UST was discovered in March 2013 during construction activities, and was subsequently removed in March 2013. This subsurface SI was conducted to assess the extent of potential impacts of lead, TPH, and VOCs to soil and groundwater from the release from the former tank at A3 Site UST (Figure 2).

The following activities were performed during the SI:

- An underground utility clearance was completed for the entire site footprint.
- Using direct push technology, 20 boring locations (A3B1 through A3B20) were advanced to a maximum depth of 25 feet below ground surface (bgs). Two soil samples were collected from each boring location and analyzed for total petroleum hydrocarbons as gasoline (TPH-g) by NWTPH-Gx, total petroleum hydrocarbons as diesel (TPH-d) by NWTPH-Dx, volatile organic compounds (VOCs) by United States Environmental Protection Agency (U.S. EPA) Method 8260B, and total lead by U.S. EPA Method 6010B.
- Four temporary monitoring wells (A3MW1 through A3MW4) were installed near the former UST location and allowed to equilibrate for 24 hours. One groundwater sample was collected from each temporary well and analyzed for TPH-g by NWTPH-Gx, TPH-d by NWTPH-Dx, VOCs by U.S. EPA Method 8260B, and total lead by U.S. EPA Method 6010B.
- All completed boring and temporary monitoring well locations were surveyed by a state-certified land surveyor.
- All solid and liquid investigation-derived waste (IDW) generated during the SI field activities was stored in 55-gallon drums, characterized, and disposed of at a regulated facility.

Based on the SI, the conclusions are as follows:

- The potential for future releases at the site has been mitigated by the closure and removal of the former UST that was completed in March 2013 (Diane's Tank Removal Services, LLC, 2013).
- TPH contamination detected at the site falls within the carbon range of C8-C24, which is the detection range for heating oil.

- Residual contamination remains in the subsurface soil above WA DOE Method A cleanup levels in the vicinity of the release associated with the A3 Site UST.
- The extent of residual contamination above WA DOE Method A cleanup levels in soil from the release from A3 Site UST has been delineated both horizontally and vertically to the north, northeast, east, west, southeast, south, southwest, and northwest through geologic observations and chemical analysis of soil samples.
- Direct contact with future human and environmental receptors could potentially be at risk from residual contamination in soil since TPH-d and TPH-g concentrations exceeding the WA DOE Method A cleanup levels are present at a depth of 6 feet bgs.
- Groundwater at the site has been impacted by TPH-d and TPH-g range organics from the former release.
- The extent of impacts to groundwater has not been fully assessed at the site. All four temporary monitoring wells installed during field sampling activities contained TPH-d concentrations that exceed the WA DOE Method A cleanup levels. The highest concentration of contaminants present in groundwater appears to be near the source of the release from the former tank and decreases as the distance from the source increases.
- Impacts to future human and environmental receptors from groundwater contamination are unknown.
- The two anomalies at the site observed during utility location activities are unknown. Anomaly #2, on the north side of site, appears to be a former building foundation based on its size. Anomaly #1, west of the Site A3 UST, may be a concrete foundation or potential UST based on its size. It does not appear anomaly #1 is contributing to the soil or groundwater contamination at the site based on borings located near and west of the anomaly not exhibiting increased levels of contamination which would indicate a release in the area from the anomaly.

Based on the conclusions, the following is recommended:

- No further investigation is needed to delineate impacts to soil at the site.
- Additional investigation of groundwater is warranted to further delineate and define the extent of impact groundwater.
- Future analytical data for the site should be compared against WA DOE Method A cleanup levels for diesel only per WA DOE guidance on the evaluation of sites contaminated with heating oil.
- Investigation to determine the nature of anomaly #1 may be warranted to ensure all historical USTs have been removed from the site.

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ATTACHMENT

Attachment 1	LABORATORY ANALYTICAL AND DATA VALIDATION REPORTS
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ACRONYMS AND ABBREVIATIONS

µg/L	micrograms per liter
Amec Foster Wheeler	Amec Foster Wheeler Environment & Infrastructure, Inc.
bgs	below ground surface
CLARC	Washington State Department of Ecology, Cleanup Levels and Risk Calculation
CLP	Contract Laboratory Program
CSM	conceptual site model
DCN	document control number
DoD	United States Department of Defense
DON	United States Department of the Navy
DPT	Direct push technology
ELAP	Environmental Laboratory Accreditation Program
HCl	hydrochloric acid
HDPE	high-density polyethylene
HNO ₃	nitric acid
IDW	investigation-derived waste
LDC	Laboratory Data Consultants, Inc.
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mL	milliliter
MMEC Group	Multimedia Environmental Compliance Group
MTCA	Washington State Department of Ecology, Model Toxics Control Act
NAD83/07	North American Datum of 1983/2007
NAS	Naval Air Station
NAVD88	North American Vertical Datum of 1988
NAVFAC NW	Naval Facilities Engineering Command Northwest
NFG	National Functional Guidelines
NOI	Notice of Intent
NWTPH-Dx	Northwest Total Petroleum Hydrocarbon Analytical Method, diesel range organics
NWTPH-Gx	Northwest Total Petroleum Hydrocarbon Analytical Method, gasoline range organics
PID	photoionization detector
PVC	polyvinyl chloride
QC	quality control

ACRONYMS AND ABBREVIATIONS (continued)

SAP	Sampling and Analysis Plan
SI	Site Investigation
TPH	total petroleum hydrocarbons
TPH-d	diesel-range total petroleum hydrocarbons
TPH-g	gasoline-range total petroleum hydrocarbons
U.S. EPA	United States Environmental Protection Agency
USCS	Unified Soil Classification System
UST	Underground Storage Tank
VOA	volatile organic analyte
VOC	volatile organic compound
WA DOE	Washington State Department of Ecology
WRIA	Water Resource Inventory Area

1 INTRODUCTION

This report presents the site history, investigation approach and results, data evaluation, conclusions, and recommendations for the subsurface Site Investigation (SI) conducted to evaluate the potential impacts from lead, total petroleum hydrocarbons (TPH), and volatile organic compounds (VOCs) to soil and groundwater resulting from an underground storage tank (UST) release at a vacant lot on the northwestern corner of Ault Field Road and Langley Boulevard at Naval Air Station (NAS) Whidbey Island, Oak Harbor, Washington (Figure 1). The site is referred to as A3 Site UST because the tank was discovered during a construction project for an A3 Airplane Memorial.

This work is being performed under Naval Facilities Engineering Command Northwest (NAVFAC NW) Contract Number N62473-12-D-2012, Task Order Number JP01, by the Multimedia Environmental Compliance Group (MMEC Group), which consists of joint venture members KMEA and Amec Foster Wheeler Environment & Infrastructure, Inc. (Amec Foster Wheeler).

1.1 PURPOSE OF REPORT

The purpose of this SI report is to document activities performed as part of the initial investigation of A3 Site UST.

The subsurface SI was conducted to assess the extent of potential impacts of lead, TPH, and VOCs to soil and groundwater from the former release at A3 Site UST within the footprint of the undeveloped lot on the northwestern corner of Ault Field Road and Langley Boulevard at NAS Whidbey Island (Figure 2).

1.2 REPORT ORGANIZATION

This report is organized as follows:

- **Section 1, Introduction:** Presents the project, discusses objectives, identifies the purpose, and outlines the organization of the report.
- **Section 2, History and Site Description:** Describes the history, previous investigation, and physical characteristics of A3 Site UST.
- **Section 3, Field Work:** Summarizes the field activities and sampling and analysis completed as part of the SI.
- **Section 4, Laboratory Results and Data Validation:** Discusses evaluation of data collected and received to determine whether or not the data are usable and valid.
- **Section 5, Conceptual Site Model:** Presents results of field observations and sample analyses and provides an updated conceptual site model (CSM) based on data from the SI.
- **Section 6, Conclusions and Recommendations:** Provides conclusions and recommendations for A3 Site UST based on the results of the SI.
- **Section 7, References:** Provides a list of references used to develop this report.
- **Appendix A:** Resource Protection Well Reports.

- **Appendix B:** Site Photographs.
- **Appendix C:** Boring Logs.
- **Appendix D;** Groundwater Sampling Field Forms.
- **Appendix E:** Survey Report.
- **Appendix F:** Waste Disposal Information.
- **Attachment 1:** Laboratory Analytical and Data Validation Reports.

2 HISTORY AND SITE DESCRIPTION

This section summarizes the site history and describes A3 Site UST.

2.1 SITE DESCRIPTION AND HISTORY

The site is located on an undeveloped lot on the corner of Ault Field Road and Langley Boulevard at Naval Air Station Whidbey Island (Figure 2). The site is associated with one UST that was discovered during excavation activities for the construction of an A3 Skywarrior Airplane memorial in October 2012. The UST was discovered in the southeastern corner of the undeveloped lot at a depth of approximately 2 feet below existing grade and was subsequently removed. The tank at A3 Site UST was formerly used to service a building that was constructed on the site in 1942, which served as an enlisted men's club and later a civilian personnel department; the former building was demolished in 2008. During the removal of the former tank at A3 Site UST in March 2013, copper feed lines were uncovered that indicated that the tank could have been used for heating oil consumption (Diane's Tank Removal Services, 2013). After the removal of the UST, it was determined that additional investigation was warranted at the site based on field observations and soil samples and one groundwater sample analytical results. As of June 2015, the planned location of the A3 Skywarrior Airplane memorial has been moved to another site and will no longer be installed at the A3 Site UST. A summary of this previous investigation is presented in Section 2.2.

2.2 PREVIOUS INVESTIGATIONS

On March 26, 2013, the 4,000-gallon UST at the A3 Site UST that was discovered during the excavation activities for the construction of an A3 Skywarrior airplane memorial at the site was removed. The tank contained an unknown mixture of petroleum product and water, and it was reported that, based on the layout and contents, the tank was most likely used for heating oil consumption. The tank removed following all appropriate local and state regulations. After tank removal, the onsite contractor noticed a petroleum odor to the subsurface soils as well as free-phase petroleum products visible on groundwater encountered during the removal (Diane's Tank Removal Services, 2013).

At the direction of the Washington State Department of Ecology (WA DOE) guidelines, three soil samples were collected from the base of the A3 Site UST removal area (approximately 8 feet below ground surface [bgs]), and three stockpile samples from excavated soil were collected and analyzed for diesel-range total petroleum hydrocarbons (TPH-d) by Northwest Total Petroleum Hydrocarbon Analytical Method (NWTPH)-Dx and for total lead by United States Environmental Protection Agency (U.S. EPA) Method 200.8. Soil samples were also screened in the field using a MiniRae 3000 photoionization detector (PID). One groundwater sample was collected from the base of the A3 Site UST removal area (approximately 7 feet bgs) and was analyzed for TPH-d and lead.

TPH-d was detected in all six soil samples as well as in the groundwater sample. TPH-d concentrations ranged from 1,300 milligrams per kilogram (mg/kg) to 10,000 mg/kg in soil and at 2,900 milligrams per liter (mg/L) in groundwater.

Lead was also detected in all six soil samples as well as in the groundwater sample collected. Lead concentrations ranged from 2.74 mg/kg to 3.89 mg/kg in soil, and was present at 4.74 mg/L in groundwater.

All results were compared with the WA DOE Model Toxics Control Act (MTCA) Method A cleanup levels for both soil and groundwater (WA DOE, 2014c). The cleanup levels are summarized below:

- Method A Cleanup Levels for Groundwater – TPH-d (0.50 mg/L) and lead (0.015 mg/L).
- Method A Cleanup Levels for Unrestricted Land Use for Soil – TPH-d (2,000 mg/kg) and lead (250 mg/kg).

Based on the results of the soil and groundwater sampling, concentrations of TPH-d in samples B-1-8-032613BS, B-2-8-032613BN, and St-2-032613 exceed the Method A cleanup levels for TPH-d in soil. Concentrations of TPH-d and lead in sample H2O-1-7-032613 exceeded the Method A cleanup levels for both TPH-d and lead in groundwater.

Based on field observations and analytical results of soil and groundwater samples collected during the tank removal, the Department of the Navy (DON) determined that additional investigation at the site was warranted.

2.3 GEOLOGY AND HYDROGEOLOGY

Sections 2.3.1 through 2.3.4 present brief descriptions of the geology and hydrogeology of the assessment area.

2.3.1 Regional Geology

The site lies within the Puget Sound lowland and is mantled with Pleistocene glacial and nonglacial deposits. Most of the surface of Whidbey Island consists of till, glaciomarine drift, gravel, and sand deposited during the last glaciation (Easterbrook, 1968). According to the *Geologic Map of Oak Harbor, Crescent Harbor, and Part of the Smith Island*, the site and vicinity area is underlain by glacial till deposits of the Vashon Stade period of the Fraser Glaciation (Dragovich et al., 2005). These deposits typically consist of “dark yellowish-brown to bluish-grey diamicton consisting of clay, silt, sand, and gravel in various proportions, with scattered pebbles, cobbles, and boulders with local thin to thick lenses of sand, gravel, or rarely silt” (Dragovich et al., 2005).

2.3.2 Local Geology

Based on public well and boring logs in the WA DOE database regarding a cleanup site at 971 Ault Field Road, approximately 500 feet to the southeast of the site (WA DOE 2014a, 2014b), as well as the previous A3 Site UST removal and sampling, it is anticipated that the local geology consists of clean, mostly gray, well-stratified, unconsolidated silt and sand with some pebbles (Diane’s Tank Removal Services, 2013).

2.3.3 Regional Hydrogeology

The site is included in the Island Watershed, also known as Water Resource Inventory Area (WRIA) 6. WRIA 6 consists of Whidbey and Camano Islands along with several smaller islands. There are no major rivers within WRIA 6, and groundwater is recharged exclusively from precipitation in the region. Groundwater in the area is designated for human and economic uses; however, many areas within WRIA 6 are impacted by seawater intrusion and those areas are not currently designated for any beneficial use (WA DOE, 2013).

2.3.4 Local Hydrogeology

Based on the previous A3 Site UST removal and sampling, groundwater was encountered at a depth of 7 feet bgs (Diane's Tank Removal Services, 2013). The WA DOE well logs also show that wells installed for the previous cleanup site at 971 Ault Field Road (WA DOE 2014a, 2014b) recorded groundwater at depths ranging from 7 to 60 feet bgs. Depth to groundwater can be highly variable because of the presence of clay and till within the vicinity of the site. In addition, based on well log data and observations made by field personnel in the previous site investigation, groundwater flow is estimated to be to the northwest following the general gradient of the site.

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3 FIELD WORK

The MMEC Group conducted field work at A3 Site UST in accordance with the Final Work Plan and Sampling Analysis Plan (SAP) (MMEC Group, 2015). Regulatory approval for the final planning document was provided by the WA DOE. Sections 3.1 through 3.4 summarize the activities performed as part of the field work for this SI. Field work was conducted at A3 Site UST from April 6 through April 10, 2015.

3.1 PRELIMINARY ACTIVITIES

3.1.1 Permitting and Mobilization

Necessary permitting and notifications were completed prior to the commencement of field activities. MMEC Group subcontractor, Cascade Drilling, prepared, paid for, and submitted a Notice of Intent (NOI) to NAS Whidbey Island Base Environmental, who then submitted it to WA DOE to construct and decommission the environmental investigation soil sampling borings and groundwater sampling wells. Field work was not started until WA DOE provided validation or receipt for the NOIs and issued a Start Card for each temporary well to be completed. For the A3 Site UST SI field activities, the WA DOE NOI number is SE54405 AE31364.

The MMEC Group notified the NAS Whidbey Island Public Affairs Department and NAVFAC NW Utilities two weeks prior to initiation of drilling, and secured the appropriate authorization from NAS Whidbey Island base personnel to perform the field work. A P-1 Certificate of Compliance form was also completed on April 8, 2015, for use with the subcontractor direct-push drilling equipment. This form was completed and kept onsite for the remainder of the site activities.

In addition, because the site location is easily accessible to the public, MMEC Group prepared a public notification bulletin that was kept onsite during SI activities for distribution to any interested parties entering the site. The bulletin contained contact information for the NAS Whidbey Island Public Affairs Officer.

Mobilization for the field work included designating an investigation-derived waste (IDW) storage area and conducting a pre-field work teleconference with NAS Whidbey Island base personnel, NAVFAC NW, and the MMEC Group project manager and field personnel. The pre-field work teleconference was held prior to mobilization to discuss project scope, health and safety requirements, drilling procedures, sampling procedures, status of submittals and procurements, and quality control (QC) protocols.

3.1.2 Utility Clearance

To ensure that no subsurface utilities were present, prior to intrusive sampling activities, the entire site area was cleared for underground utilities by a third party utility clearance subcontractor. MMEC Group notified Washington State Utility Notification Center at least 48 hours prior to initiation of any subsurface drilling activities (Ticket #15081578). The site footprint was also cleared for proposed drilling by a third-party utility surveying subcontractor, CNI Locates. A minimum clearance of 5 feet from the closest observed underground utility was maintained at all drilling locations, and a minimum distance of 20 feet was maintained from all overhead power lines. Prior to drilling activities, each boring was cleared down to approximately 5 feet bgs with a hand auger to ensure clearance from subsurface utilities.

During the underground utility survey of the site footprint, two rectangular shaped anomalies were discovered by the subcontractor. The first anomaly (anomaly #1) is located west of the former UST location and is approximately 8 feet by 6 feet. The second anomaly (anomaly #2) is located in the northern portion of the site and is approximately 16 feet by 14 feet. Based on the sizes of the anomalies; anomaly #1 it is likely a concrete foundation or a UST and anomaly #2 is likely a former building foundation. Due to the presence of the anomalies, no subsurface activities were performed in those areas, and the source of the anomaly is unknown. The location of the anomalies is included with the survey report in Appendix E.

3.2 SUBSURFACE INVESTIGATION

Sampling and analysis followed procedures outlined in the Final Work Plan and SAP (MMEC Group, 2015). Photographs of the field work conducted are presented in Appendix A. Deviations from the Work Plan and SAP are discussed in Section 4.5.

3.2.1 Soil Borings

A total of 20 soil borings were advanced using direct push technology (DPT) and sampled at A3 Site UST to a maximum depth of 25 feet bgs (Figure 3). Two soil samples were collected from each boring location at depth intervals corresponding to visual and olfactory observations and PID readings indicative of TPH impact. One soil sample was collected from the area of highest suspected contamination based on field observations. The second soil sample was collected at a depth where contamination was no longer suspected to be present based on field observations, or at a final depth of 25 feet bgs, whichever was encountered first. Table 1 summarizes the boreholes completed at A3 Site UST as part of this SI. Figures 4, 5, 6, and 7 present cross sections of the site based on the completed boreholes.

Prior to the start of any drilling activities, a representative from NAS Whidbey Island was onsite to identify the location of the former underground storage tank. One boring (A3B1) was completed in the center of the footprint of the former tank. Because the removal area associated with the former UST extended to a depth of 8 feet bgs, no sampling was performed prior to 8 feet bgs in the area of disturbed soil to ensure that only native soil (no artificial fill material) was sampled. Four additional borings were advanced approximately 5 feet to the north (A3B3), south (A3B5), east (A3B4), and west (A3B2) of the center of the footprint of the former tank. Based on the observations made during the advancement of these five borings, the remaining boring locations were determined in the field on the basis of visual and olfactory observations, and PID readings. The remaining boring locations (A3B6 through A3B20) were positioned to attempt to define the horizontal extent of the impacted soil at the site, or to determine concentrations of impacted soil present up to the site boundary.

All borings were visually logged in general accordance with the Unified Soil Classification System (USCS) under the supervision of a Professional Geologist. Boring logs are provided in Appendix B.

After the completion of the borings, the borings were backfilled with bentonite grout and the ground surface was repaired to pre-existing conditions in accordance with the WA DOE specifications. Copies of the Resource Well Protection Reports completed by Cascade Drilling for submittal to the WA DOE are included in Appendix C.

3.2.2 Temporary Groundwater Monitoring Well

On April 9, 2015, four temporary groundwater monitoring wells were drilled using DPT and installed at A3 Site UST (Figure 3). Each temporary well was constructed of ¾ inch, 10 foot slotted polyvinyl chloride (PVC) pipe, packed with #2 sand, and sealed to the surface with bentonite. A3MW1 was installed with a screen interval from approximately 0 to 10 feet bgs, A3MW2 was installed with a screen interval from approximately 3 to 13 feet bgs, A3MW3 was installed with a screen interval from approximately 4 to 14 feet bgs, and A3MW4 was installed with a screen interval from approximately 2 to 12 feet bgs. The locations of the screens were determined onsite on the basis of the depth to groundwater observed at each location at the time of the drilling. After installation, a peristaltic pump and tubing were used to surge the wells and remove any residual sediment located inside of the well. Several initial well locations had to be abandoned and reinstalled because of no or very low groundwater yield from the wells. Each abandoned location was properly backfilled as described below.

Temporary groundwater monitoring wells were allowed to equilibrate for 24 hours, and were sampled in accordance with the SAP (MMEC Group, 2015). Groundwater sampling logs are included in Appendix D. Groundwater elevations from the sampling are shown on Figure 8. Immediately after each temporary well was sampled, the well was removed, backfilled with hydrated bentonite, and the ground surface repaired to pre-existing conditions in accordance with the WA DOE requirements. Table 2 summarizes the temporary groundwater monitoring well construction.

3.2.3 Laboratory Analysis

3.2.3.1 Soil Samples

Samples were collected at each sample depth using five 5-gram EnCore® samplers for VOC and gasoline-range total petroleum hydrocarbons (TPH-g) analysis, plus approximately 8 ounces of soil collected in a glass jar for TPH-d and total lead analysis.. Samples were stored on ice until the end of the day, and then shipped via overnight carrier to Eurofins Calscience in Garden Grove, California, a Washington State and Department of Defense (DoD) Environmental Laboratory Accreditation Program (ELAP) accredited laboratory located in Garden Grove, California.

Soil samples were analyzed for the following:

- TPH-g (NWTPH-Gx)
- TPH-d (NWTPH-Dx)
- VOCs (U.S. EPA Method 8260B)
- Total lead (U.S. EPA Method 6010B)

Tables 3, 4, and 5 summarize the soil sample analytical results.

3.2.3.2 Groundwater Samples

Samples were collected for TPH-g and VOC analysis using six 40-milliliter (mL) glass volatile organic analyte (VOA) vials preserved with hydrochloric acid (HCl),; two 500-mL unpreserved glass amber jars for TPH-d analysis; and one 250-mL high-density polyethylene (HDPE) bottle preserved with nitric acid (HNO₃) for total lead analysis. Samples were not filtered in the field prior to collection. One sample was collected from each temporary groundwater monitoring well. Samples were stored on ice until the end of the day, and then shipped via an overnight courier to Eurofins Calscience in Garden Grove, California,.

Groundwater samples were analyzed for the following:

- TPH-g (NWTPH-Gx)
- TPH-d (NWTPH-Dx)
- VOCs (U.S. EPA Method 8260B)
- Total lead (U.S. EPA Method 6010B)

Tables 6, 7, and 8 summarize the groundwater sample analytical results.

3.3 LAND SURVEYING

On April 10, 2014, the completed borings and temporary monitoring wells were surveyed under the direction of a State of Washington certified land surveyor. Horizontal datum (coordinates) are based on the North American Datum of 1983 (NAD 83/07) Zone 6 and are presented as decimal degrees. Vertical datum (heights) are based on the North American Vertical Datum of 1988 (NAVD88) and are presented to the nearest tenth of a foot. The location of subsurface utilities, telephone lines, and subsurface anomalies detected during the utility clearance were also surveyed. The survey report is presented in Appendix E.

3.4 INVESTIGATION-DERIVED WASTE DISPOSAL

IDW generated as part of the SI field activities at A3 Site UST included soil cuttings from borings, purged groundwater, and water generated during decontamination and drilling. The highest concentrations detected from the soil and groundwater analysis were used to characterize the IDW. Soil and water generated during the SI activities were stored onsite in five U.S. Department of Transportation-approved 55-gallon drums (2 for water, 3 for soil). Based on laboratory analysis of the soils and water, the IDW was profiled as nonhazardous. Stericycle Environmental Solutions was subcontracted to dispose of the nonhazardous waste. Copies of the manifests and waste profiles are included in Appendix F.

4 LABORATORY RESULTS AND DATA VALIDATION

Collected soil and groundwater samples were analyzed at Eurofins Calscience, Inc., located in Garden Grove, California. Samples were analyzed for TPH-g by NWTPH-Gx, TPH-d by NWTPH-Dx, VOCs by U.S. EPA Method 8260B, and total lead by U.S. EPA Method 6010B. Eurofins Calscience, Inc. is accredited by the State of Washington and DoD ELAP. Analytical results were subject to external data validation by an independent, third-party subcontractor, Laboratory Data Consultants, Inc. (LDC). Sections 4.1 through 4.5 summarize the data and evaluate the usability of data collected. Laboratory analytical results are included as Attachment 1.

4.1 LABORATORY RESULTS

Soil and groundwater analytical results were compared with the established WA DOE MTCA Method A cleanup levels specified in the Cleanup Levels and Risk Calculation (CLARC) database. Analytical results from the soil sampling were compared with the Method A unrestricted land use values presented in the database, and analytical results from the groundwater sampling were compared with the Method A concentrations for groundwater. Any exceedances to the Method A cleanup levels are identified in the data summary tables.

4.1.1 Soil Samples

Analytical results for soil samples collected are summarized below and presented in Tables 3, 4, and 5.

Results for TPH-d and TPH-g by NWTPH-DX and NWTPH-Gx are summarized as follows:

- Concentrations of TPH-d ranged from non-detect at a reporting limit of 2.00 mg/kg to a maximum of 26,000 mg/kg. The maximum result was from a sample collected from boring A3B6 at a depth of 10 feet bgs. Four of the soil samples collected (A3B4-SO-13, A3B6-SO-10, A3B8-SO-8, and A3B15-SO-6) exceeded the soil Method A cleanup levels for TPH-d (2,000 mg/kg).
- Concentrations of TPH-g ranged from non-detect at a reporting limit of 0.039 mg/kg to a maximum of 3,300 mg/kg. The maximum result was from a sample collected from boring A3B5 at a depth of 13 feet bgs. Ten of the soil samples collected (A3B1-SO-10, A3B2-SO-13, A3B3-SO-11, A3B4-SO-13, A3B5-SO-13, A3B6-SO-10, A3B8-SO-8, A3B12-SO-12, A3B14-SO-14, and A3B15-SO-6) exceeded the soil Method A cleanup levels for TPH-g (100 mg/kg; 30 mg/kg if benzene is present).

Results for VOCs by U.S. EPA Method 8260B are summarized as follows:

- Concentrations of benzene ranged from non-detect at a reporting limit of 0.15 micrograms per kilogram ($\mu\text{g/kg}$) to a maximum of 0.45J $\mu\text{g/kg}$. The maximum result was from a sample collected from boring A3B18 at a depth of 16 feet bgs. None of the soil samples collected exceeded the soil Method A cleanup levels for benzene (30 $\mu\text{g/kg}$).
- Concentrations of toluene ranged from non-detect at a reporting limit of 1.5 $\mu\text{g/kg}$ to a maximum of 00.85J $\mu\text{g/kg}$. The maximum result was from a sample collected from boring A3B20 at a depth of 25 feet bgs. None of the soil samples collected exceeded the soil Method A cleanup levels for toluene (7,000 $\mu\text{g/kg}$).

- Concentrations of ethylbenzene ranged from non-detect at a reporting limit of 0.015 µg/kg to a maximum of 500J µg/kg. The maximum result was from a sample collected from boring A3B6 at a depth of 10 feet bgs. None of the soil samples collected exceeded the soil Method A cleanup levels for ethylbenzene (6,000 µg/kg).
- Concentrations of total xylenes (m-, o-, and p-xylenes) ranged from non-detect at a reporting limit of 0.30 µg/kg to a maximum of 850J µg/kg. The maximum result was from a sample collected from boring A3B6 at a depth of 10 feet bgs. None of the soil samples collected exceeded the soil Method A cleanup levels for total xylenes (9,000 µg/kg).
- Concentrations of naphthalene ranged from non-detect at a reporting limit of 1.5 µg/kg to a maximum of 6,100J µg/kg. The maximum result was from a sample collected from boring A3B5 at a depth of 13 feet bgs. Two of the soil samples collected (A3B5-SO-13 and A3B6-SO-10) exceeded the soil Method A cleanup levels for naphthalene (5,000 µg/kg).

Results for total lead by U.S. EPA Method 6010B are summarized as follows:

- Concentrations of total lead ranged from 1.80 mg/kg to 6.58 mg/kg. The maximum result was from a sample collected from boring A3B19 at a depth of 7 feet bgs. None of the soil samples collected exceeded the soil Method A cleanup levels for unrestricted land use (250 mg/kg).

Figure 9 shows the soil samples collected for the SI with concentrations that exceed WA DOE cleanup levels.

4.1.2 Groundwater Samples

Analytical results for groundwater samples are summarized below and presented in Tables 6, 7, and 8.

Results for TPH-d and TPH-g by NWTPH-DX and NWTPH-Gx are summarized as follows:

- Concentrations of TPH-d ranged from 610 micrograms per liter (µg/L) to 19,000 µg/L. The maximum result was collected in A3MW3. All groundwater samples collected at the site exceeded the groundwater Method A cleanup levels for TPH-d (500 µg/L).
- Concentrations of TPH-g ranged from 150J µg/L to 12,000J µg/L. The maximum result was collected in A3MW3. Two of the groundwater samples collected (A3MW3-GW and A3MW5-GW [duplicate sample from A3MW3]) exceeded the groundwater Method A cleanup levels for TPH-g (1,000 µg/L).

Results for VOCs by U.S. EPA Method 8260B are summarized as follows:

- Concentrations of benzene ranged from non-detect at a reporting limit of 0.500 µg/L to a maximum of 8.90 µg/L. The maximum concentration was from A3MW5-GW [duplicate sample from A3MW3]. Two groundwater samples collected at the site (A3MW3-GW and A3MW5-GW [duplicate sample from A3MW3]) exceeded the groundwater Method A cleanup levels for benzene (5 µg/L).

- Concentrations of toluene ranged from non-detect at a reporting limit of 0.500 µg/L to a maximum of 0.410J µg/L. The maximum concentration was detected in A3MW3-GW. None of the groundwater samples collected exceeded the groundwater Method A cleanup levels for toluene (1,000 µg/L).
- Concentrations of ethylbenzene ranged from non-detect at a reporting limit of 0.500 µg/L to a maximum of 32.0 µg/L. The maximum concentration was detected in both A3MW3-GW and duplicate sample A3MW5-GW. None of the groundwater samples collected exceeded the groundwater Method A cleanup levels for ethylbenzene (700 µg/L)
- Concentrations of total xylenes (m-, o-, and p-xylenes) ranged from non-detect at a reporting limit of 0.500 µg/L to a maximum of 0.620J µg/L. The maximum concentration was detected in A3MW3-GW. None of the groundwater samples collected exceeded the groundwater Method A cleanup levels for total xylenes (1,000 µg/L)
- Concentrations of naphthalene ranged from non-detect at a reporting limit of 5.00 µg/L to a maximum of 85.0 µg/L. The maximum concentration was from a duplicate sample, A3MW5-GW, collected from parent sample A3MW3-GW, at temporary monitoring well A3MW3. None of the groundwater samples collected exceeded the groundwater Method A cleanup levels for naphthalene (160 µg/L)

Results for total lead by U.S. EPA Method 6010B are summarized as follows:

- Concentrations of total lead ranged from non-detect at a reporting limit of 5.00 µg/L to a maximum of 16.4 µg/L. The maximum result was from groundwater sample A3MW5-GW [duplicate sample from A3MW3]. One of the groundwater samples collected (A3MW5-GW [duplicate sample from A3MW3]) exceeded the groundwater Method A cleanup levels for total lead (15 µg/L).

Figure 10 shows the interpreted TPH-d concentrations in groundwater based on the four temporary monitoring wells installed as part of the SI. All TPH-d detections in groundwater exceeded the WA DOE cleanup levels.

4.2 QUALITY ASSURANCE AND QUALITY CONTROL

One field duplicate sample (identified as A3MW5-GW) was collected during the temporary groundwater monitoring well sampling from monitoring well A3MW3 and analyzed for TPH-g by NWTPH-GX, TPH-d by NWTPH-Dx, VOC by U.S. EPA Method 8260B, and lead by U.S. EPA Method 6010B. Field duplicate samples were not collected of soil samples.

Two trip blanks were also submitted to the laboratory for VOC analysis by U.S. EPA Method 8260B. One trip blank was included in each cooler that was shipped to the laboratory.

Equipment blanks and source blanks were not required for the SI since only dedicated sampling equipment was used during soil and groundwater sampling activities.

Method blanks, surrogate spikes, laboratory control samples (LCS), and LCS duplicates (LCSD) were provided by the lab and analyzed to assess method accuracy and precision in accordance with the analytical method specifications. A set of matrix spike (MS) and matrix spike duplicate (MSD) samples were also provided to the laboratory to assess for matrix interference (collected from samples A3B7-SO-8, A3B17-SO-25, and A3MW3-GW). All laboratory quality control

samples were analyzed at a rate of one sample for every 20 field samples collected from each matrix.

4.3 DATA VALIDATION GUIDELINES

The analytical data from 10 percent of the samples underwent Level IV data validation and the remaining 90 percent underwent Level III data quality review. LDC performed the data validation, referencing the project SAP (MMEC Group, 2015), the Department of Defense Quality Systems Manual for Environmental Laboratories Version 5.0 (DoD, 2013), the U.S. EPA Contract Laboratory Program (CLP) National Functional Guidelines (NFGs) for Superfund Organic Methods Data Review (U.S. EPA, 2014), the CLP NFGs for Inorganic Superfund Data Review (U.S. EPA, 2010), and the most current versions of the U.S. EPA SW-846 Test Methods for Evaluating Solid Waste (U.S. EPA, 2007).

4.4 DATA VALIDATION PROCESS

During validation, LDC evaluated the following parameters against validation guidelines: sample receipt/technical holding times, instrument performance check (as appropriate), initial and continuing calibrations, blank detections, interference check samples (metals only), laboratory control sample recoveries, surrogate spike recoveries (organic analyses only), laboratory duplicate precision, matrix spike/matrix spike duplicate recoveries and precision, internal standard recoveries (as appropriate), serial dilution precision (metals only), target compound identification and quantification (Level IV data validation only), analytical system performance (Level IV data validation only), field duplicate precision, and, to the extent possible, compliance with good laboratory practices.

LDC applied the following qualifiers to the data during validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however, the reported concentration is estimated because of non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however, the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UU (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however, the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

4.5 DATA VALIDATION FINDINGS

During validation data were qualified and flagged accordingly on the basis of the data evaluation process described above. Complete validation findings are in the validation reports in Attachment 1.

4.6 DEVIATIONS FROM THE WORK PLAN

Soil and groundwater samples were collected in accordance with the Work Plan and SAP (MMEC Group, 2015). Based on the subsurface conditions at the site, pre-packed wells were

not able to be used for the temporary well installation. Because of the presence of dense clay in the subsurface, the drillers advised that the pre-packed wells could not be advanced to the required depth without breaking. Therefore, all temporary groundwater monitoring wells were drilled to the desired depth and installed with $\frac{3}{4}$ inch, 10 foot slotted polyvinyl chloride (PVC) pipe, packed with #2 sand, and the surface sealed with bentonite.

In addition, due to delays from the shipping contractor, samples collected in Encore samplers on April 10, 2015 from borings A3B17, A3B18, A3B19, and A3B20 were received outside of the 48 hour holding time for NWTPH-Gx, and VOC analysis. Therefore, the results for those analytes were qualified during data validation with a J flag, indicating that the result is an estimated value.

No other deviations from the Work Plan and the SAP were required or noted.

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5 CONCEPTUAL SITE MODEL

This section presents a CSM of A3 Site UST based on the SI.

5.1 EXTENT OF CHEMICALS IN SOILS

The A3 Site UST was removed in March 2013. Samples collected from this SI show that TPH-g range organics and TPH-d is present in both underlying and surrounding soils, as presented in Tables 3, 4, and 5. Soil contamination has been assessed vertically to a maximum depth of 25 feet bgs and laterally in a radial pattern from the center of the footprint of the former UST.

Lead was not detected in any of the soil samples at concentrations above the WA DOE Method A cleanup level (250 mg/kg) and is therefore not a contaminant of concern in subsurface soils.

Naphthalene was the only VOC detected at concentrations above the WA DOE Method A cleanup level (5 mg/kg). Naphthalene was detected in boring A3B5 (6.10J mg/kg) at a depth of 13 feet bgs, and A3B6 (5.10 mg/kg) at a depth of 25 feet bgs. No other VOC detections exceeded the WA DOE Method A cleanup level. Based on the concentrations and limited detections, VOCs are not considered a contaminant of concern in subsurface soils.

The site has been impacted by petroleum hydrocarbons, found in the range of TPH-d and TPH-g range organics. Based on input from the laboratory, the sample profiles fall within the carbon range of C8-C24, which is the range which heating oil would be detected. The specific type of petroleum hydrocarbon detected in the soil using NWTPH-Gx and NWTPH-Dx is unknown but it is likely heating oil based on the carbon range in which contamination was detected.

5.1.1 Lateral Extent

The lateral extent of residual hydrocarbon contamination above WA DOE Method A cleanup levels is summarized as follows:

- The lateral extent of hydrocarbons above WA DOE Method A cleanup levels to the southwest, south, east, west, northeast, and northwest of A3B1, the approximate center of the footprint of the former UST, have been delineated by borings A3B13, A3B10, A3B11, A3B19, A3B20, and A3B18. No petroleum hydrocarbons were detected above the WA DOE Method A cleanup levels in either shallow or deep samples (to a maximum of 25 feet bgs) at each of these locations.
- The soil boring at the westernmost location, A3B20, exhibited detections for TPH-d of 5.10 mg/kg. Though still detected to the west, concentrations attenuate three orders of magnitude from the original UST footprint, A3B14, to A3B20, over a distance of approximately 70 feet and are below the WA DOE Method A cleanup levels.

- Detections exceeding the WA DOE Method A cleanup levels are centered on the footprint of the former underground storage tank and include the following 10 boreholes: A3B1^G, A3B2^G, A3B3^G, A3B4^{D,G}, A3B5^G, A3B6^D, A3B8^{D,G}, A3B12^G, A3B14^G, and A3B15^{D,G}. TPH-d exceedances range from 2,100 mg/kg to 26,000 mg/kg (with a median of 8,750 mg/kg) and were detected between 6 feet to 13 feet bgs. TPH-g exceedances range from 30.0 mg/kg to 3,300 mg/kg (with a median of 817 mg/kg) and were detected between 6 feet and 14 feet bgs. Beyond the former source area, analytical results either showed no detections or decreasing trends in all directions.

5.1.2 Vertical Extent

The vertical extent of residual petroleum hydrocarbon contamination above WA DOE Method A cleanup levels is summarized as follows:

- The vertical extent of residual petroleum hydrocarbon contamination above WA DOE Method A cleanup levels appears to extend to a maximum depth of approximately 14 feet bgs at boring A3B14.
- There were no detections of petroleum hydrocarbons above the WA DOE Method A cleanup levels deeper than 14 feet bgs in any collected soil samples.

Soil analytical results are shown on Tables 3 thru 5. The soil analytical results that exceeded the WA Doe Method A cleanup level are shown on Figure 9.

5.2 EXTENT OF CHEMICALS IN GROUNDWATER

Four temporary groundwater monitoring wells were installed and sampled as part of this SI. Groundwater samples show that groundwater beneath the site is primarily impacted with hydrocarbons at concentrations that exceed the WA DOE Method A cleanup levels. Lead was detected in duplicate sample A3MW5 (parent sample A3MW3) at a concentration of 16.4 µg/L (parent sample lead concentration 12.6 µg/L). The WA DOE Method A cleanup level for lead in groundwater is 15.0 µg/L. Based on the low lead concentrations present in both the parent and the duplicate samples, lead is not a contaminant of concern in groundwater at the site.

Benzene was detected in A3MW3 (8.80 µg/L) and A3MW5 (parent sample A3MW3, 8.90 µg/L) at concentrations that exceed the WA DOE Method A cleanup level (5.00 µg/L). Because of the low concentrations of benzene and non-detections of other VOCs at the site, benzene is not considered a primary contaminant of concern.

TPH-d was detected in all four temporary monitoring wells: A3MW1 (700 µg/L), A3MW2 (1,700 µg/L), A3MW3 (19,000 µg/L), and A3MW4 (610 µg/L). Concentrations in all four wells exceed the WA DOE Method A cleanup level (500 µg/L). The lateral extent of TPH-d contamination in groundwater has not been defined by this SI; however, as distance from the source point increases, the concentration of TPH-d decreases. Figure 10 shows the interpreted TPH-d extent at the site.

TPH-g was detected in all four temporary monitoring wells; however, only A3MW3 had a concentration of TPH-g (12,000 µg/L) that exceeds the WA DOE Method A cleanup level of 1,000 µg/L. The highest concentration of TPH-g was detected in A3MW3, which is located

^G Exceeded Soil Method A for TPH-g

^D Exceeded Soil Method A for TPH-d

downgradient of the A3 Site UST source point. The lateral extent of TPH-g exceeding the WA DOE Method A cleanup level has been defined downgradient of the A3 Site UST point source. The extent of the contamination surrounding A3MW3 has not been clearly defined.

5.3 POTENTIAL RECEPTORS AND MIGRATION PATHWAYS

Sections 5.2.1 through 5.2.3 discuss potential receptors and migration pathways at A3 Site UST.

5.3.1 Soil

Soil is a primary source medium. The data supports the removed UST as the point source for contamination. Soil contaminants with concentrations above Method A cleanup levels were observed immediately surrounding the former UST footprint: borings A3B1, A3B2, A3B3, A3B4, A3B5, A3B6, A3B8, A3B12, A3B14, and A3B15. Potential exposure routes associated with direct soil contact at the site include incidental ingestion and dermal contact anticipated to occur during intrusive subsurface activities at the site. Direct contact with future human and environmental receptors could potentially be at risk from residual contamination in soil since TPH-d and TPH-g concentrations exceeding the WA DOE Method A cleanup levels are present at a depth of 6 feet bgs.

Under the simplified terrestrial ecological evaluation using MTCA's Table 749-1 (WAC 173-340-900), the site soil is excluded from terrestrial ecological evaluation. Since the site is currently commercial use wildlife are the potential receptors. No burrows or surface nest were observed in the area of the site, therefore no potential receptors are present.

5.3.2 Vapor

Soil vapor is a secondary source medium. Residual contamination above Method A cleanup levels exists in soil at borings A3B1, A3B2, A3B3, A3B4, A3B5, A3B6, A3B8, A3B12, A3B14, and A3B15. For any shallow residuals that could act as a source of vapor, inhalation of soil vapor through outdoor air is an unlikely exposure route. Inhalation of vapors by occupants of structures is not a complete exposure pathway because no structures are currently located in the 100 foot vicinity of the release. Since the extent of impacted groundwater is unknown, the inhalation risk for adjacent structures from groundwater is also unknown. An educational facility for middle and high school students is located approximately 0.2 miles down gradient from the source area.

5.3.3 Groundwater

Groundwater is a primary source medium. The water table observed at this site exhibits highly localized flow characteristics due to the heterogeneous glacial advance outwash with bar and channel deposits. The northwest-trending groundwater gradient inferred from the four monitoring wells appears to be dry throughout its column both directly upgradient (A3B10) and directly downgradient (A3B18) to a depth of 25 feet bgs based on observations made during borehole completion. Recharge and discharge areas were not determined from this investigation. While local groundwater movement is difficult to discern, these limited observations conform to the generalized northwesterly flow in the region, approximating the overall surface topography sloping toward the Strait of Juan de Fuca (Figure 8).

With the point source removed, groundwater is the primary agent transporting the contaminants. The lateral and vertical soil contaminant trends do not indicate that significant concentrations of

petroleum are currently being transported from the source area. This may be a result of the poor hydrologic connections of the water table encountered around the clay-rich former tank footprint, or natural attenuation of the petroleum product since the 1940s following the installation of the tank.

6 CONCLUSIONS AND RECOMMENDATIONS

Based on the SI conducted at A3 Site UST and the CSM, the following conclusions and recommendations apply.

6.1 CONCLUSIONS

Based on the SI, the conclusions are as follows:

- The potential for future releases at the site has been mitigated by the closure and removal of the former UST that was completed in March 2013 (Diane's Tank Removal Services, LLC, 2013).
- TPH contamination detected at the site falls within the carbon range of C8-C24, which is the detection range for heating oil.
- Residual contamination remains in the subsurface soil above WA DOE Method A cleanup levels in the vicinity of the release associated with the A3 Site UST.
- The extent of residual contamination above WA DOE Method A cleanup levels in soil from the release from A3 Site UST has been delineated both horizontally and vertically to the north, northeast, east, west, southeast, south, southwest, and northwest through geologic observations and chemical analysis of soil samples.
- Direct contact with future human and environmental receptors could potentially be at risk from residual contamination in soil since TPH-d and TPH-g concentrations exceeding the WA DOE Method A cleanup levels are present at a depth of 6 feet bgs.
- Groundwater at the site has been impacted by TPH-d and TPH-g range organics from the former release.
- The extent of impacts to groundwater has not been fully assessed at the site. All four temporary monitoring wells installed during field sampling activities contained TPH-d concentrations that exceed the WA DOE Method A cleanup levels. The highest concentration of contaminants present in groundwater appears to be near the source of the release from the former tank and decreases as the distance from the source increases.
- Impacts to future human and environmental receptors from groundwater contamination are unknown.
- The two anomalies at the site observed during utility location activities are unknown. Anomaly #2, on the north side of site, appears to be a former building foundation based on its size. Anomaly #1, west of the Site A3 UST, may be a concrete foundation or potential UST based on its size. It does not appear anomaly #1 is contributing to the soil or groundwater contamination at the site based on borings located near and west of the anomaly not exhibiting increased levels of contamination, which would indicate a release in the area from the anomaly.

6.2 RECOMMENDATIONS

Based on the conclusions, the following is recommended:

- No further investigation is needed to delineate impacts to soil at the site.
- Additional investigation of groundwater is warranted to further delineate and define the extent of impact groundwater.
- Future analytical data for the site should be compared against WA DOE Method A cleanup levels for diesel only per WA DOE guidance on the evaluation of sites contaminated with heating oil.
- Investigation to determine the nature of anomaly #1 may be warranted to ensure all historical USTs have been removed from the site.

7 REFERENCES

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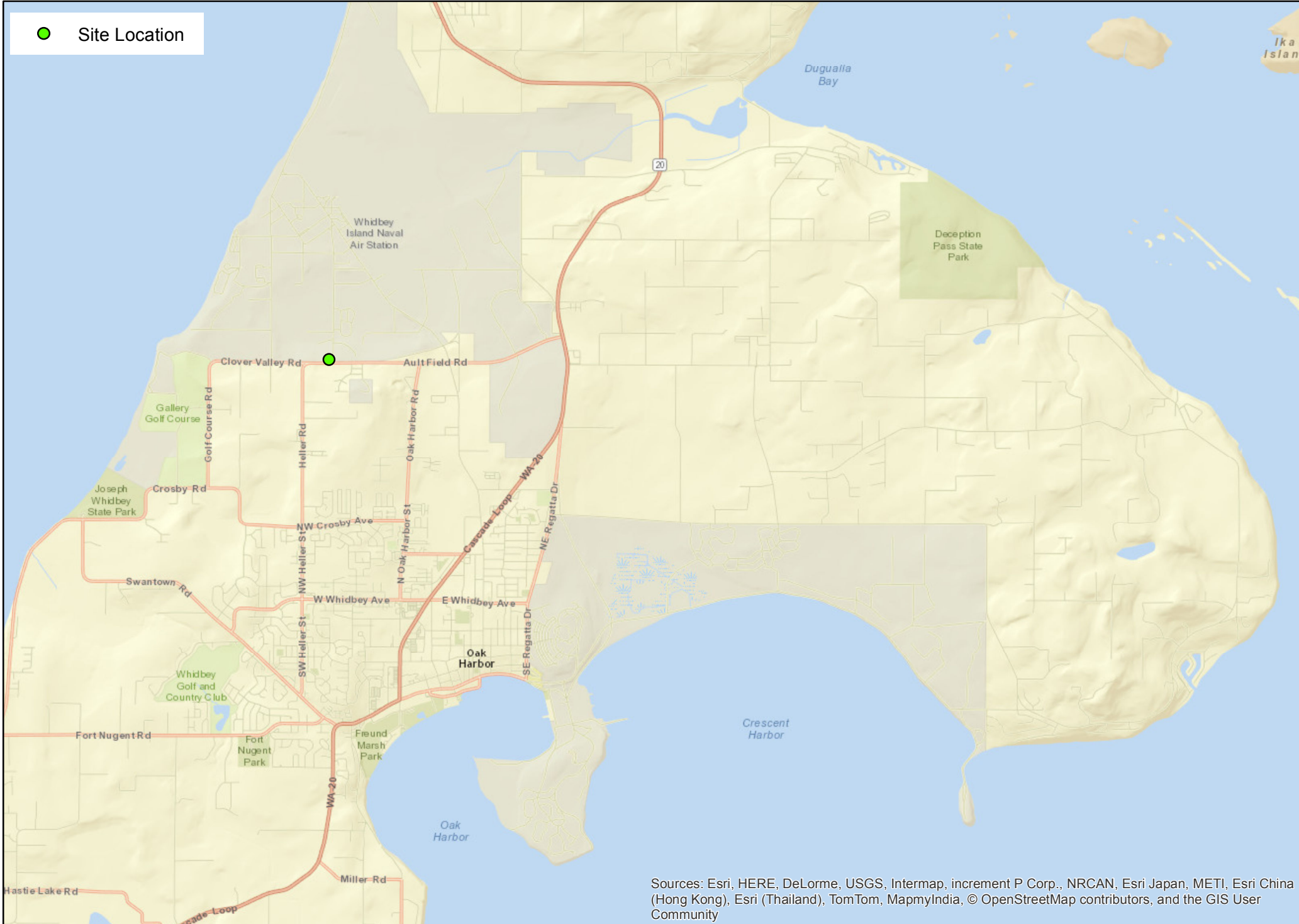
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FIGURES


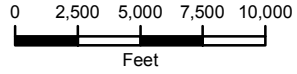

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	Completed Boring and Temporary Monitoring Well Location Map
Figure 4	Cross Section A - A'
Figure 5	Cross Section B - B'
Figure 6	Cross Section C - C'
Figure 7	Cross Section D - D'
Figure 8	Groundwater Elevations
Figure 9	Soil Concentrations Exceeding the Washington State Department of Ecology Method A Cleanup Levels
Figure 10	TPH-D in Groundwater

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● Site Location



Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

<p>PROJECT : N62473-12-D-2012</p> <p>DATE: August 2015</p> <p>DRAWN BY: RMH</p> <p>CHECKED BY: KTO</p>	 <p>N</p>  <p>0 2,500 5,000 7,500 10,000 Feet</p>		<p>SUBSURFACE SITE INVESTIGATION A3 SITE UNDERGROUND STORAGE TANK NAS Whidbey Island Oak Harbor, Washington</p>	<p>Site Location Map</p>	<p>Figure 1</p>
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Approximate Site Boundary

Langley Boulevard

Ault Field Road

PROJECT :
N62473-12-D-2012
DATE: August 2015
DRAWN BY: RMH
CHECKED BY: KTO



0 25 50 75 100
Feet



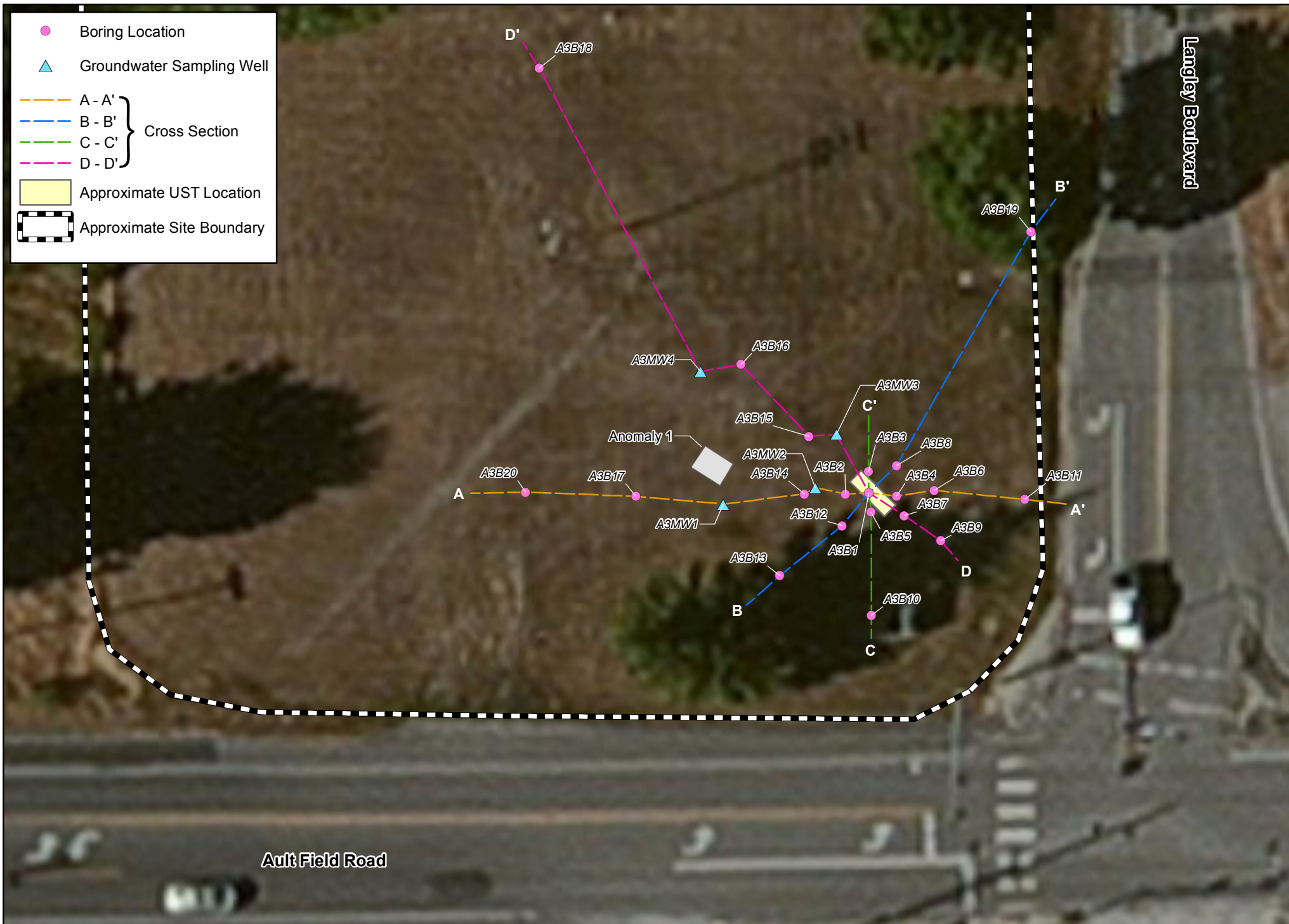
SUBSURFACE SITE INVESTIGATION
A3 SITE UNDERGROUND STORAGE TANK
NAS Whidbey Island
Oak Harbor, Washington

Site Map

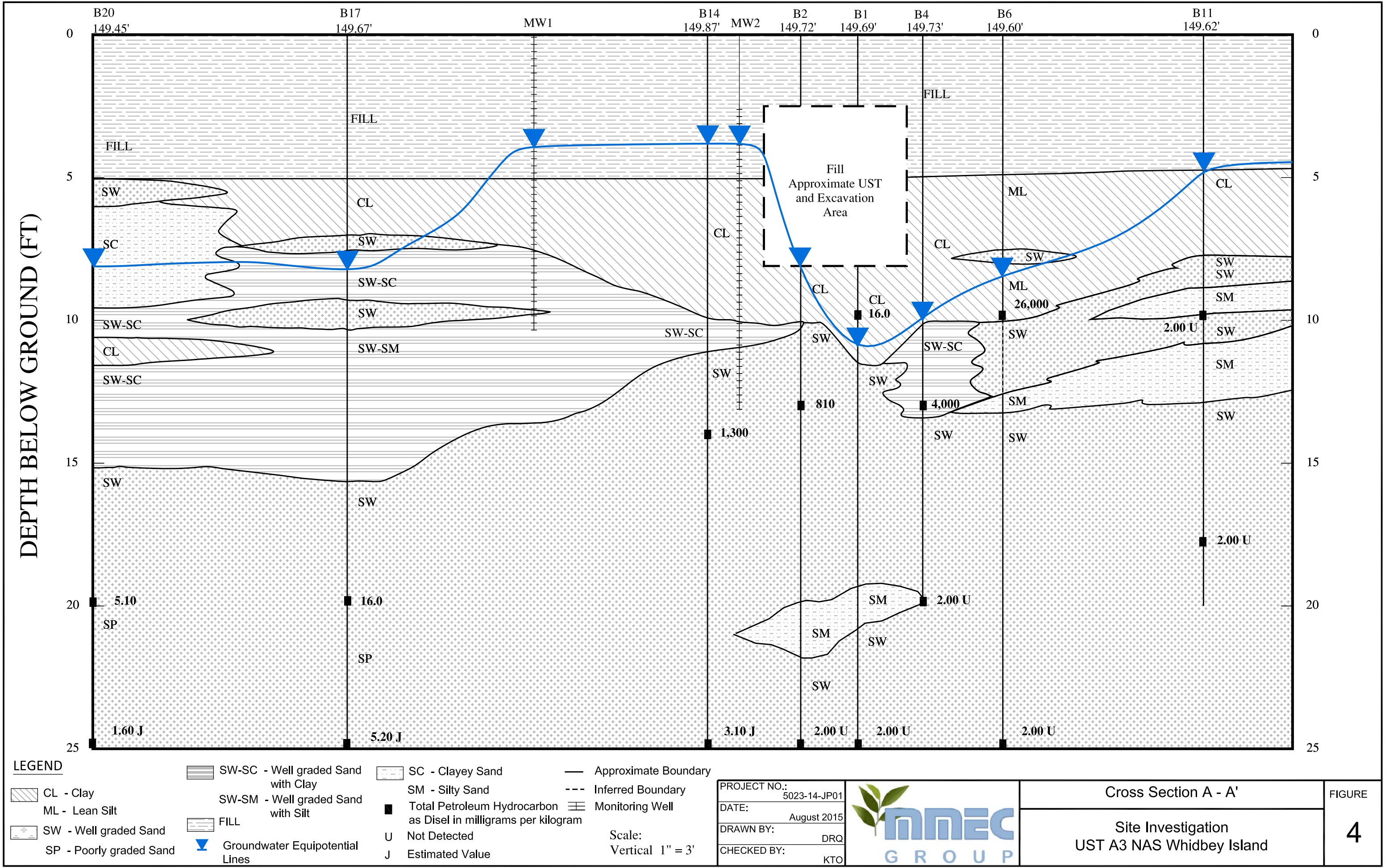
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2

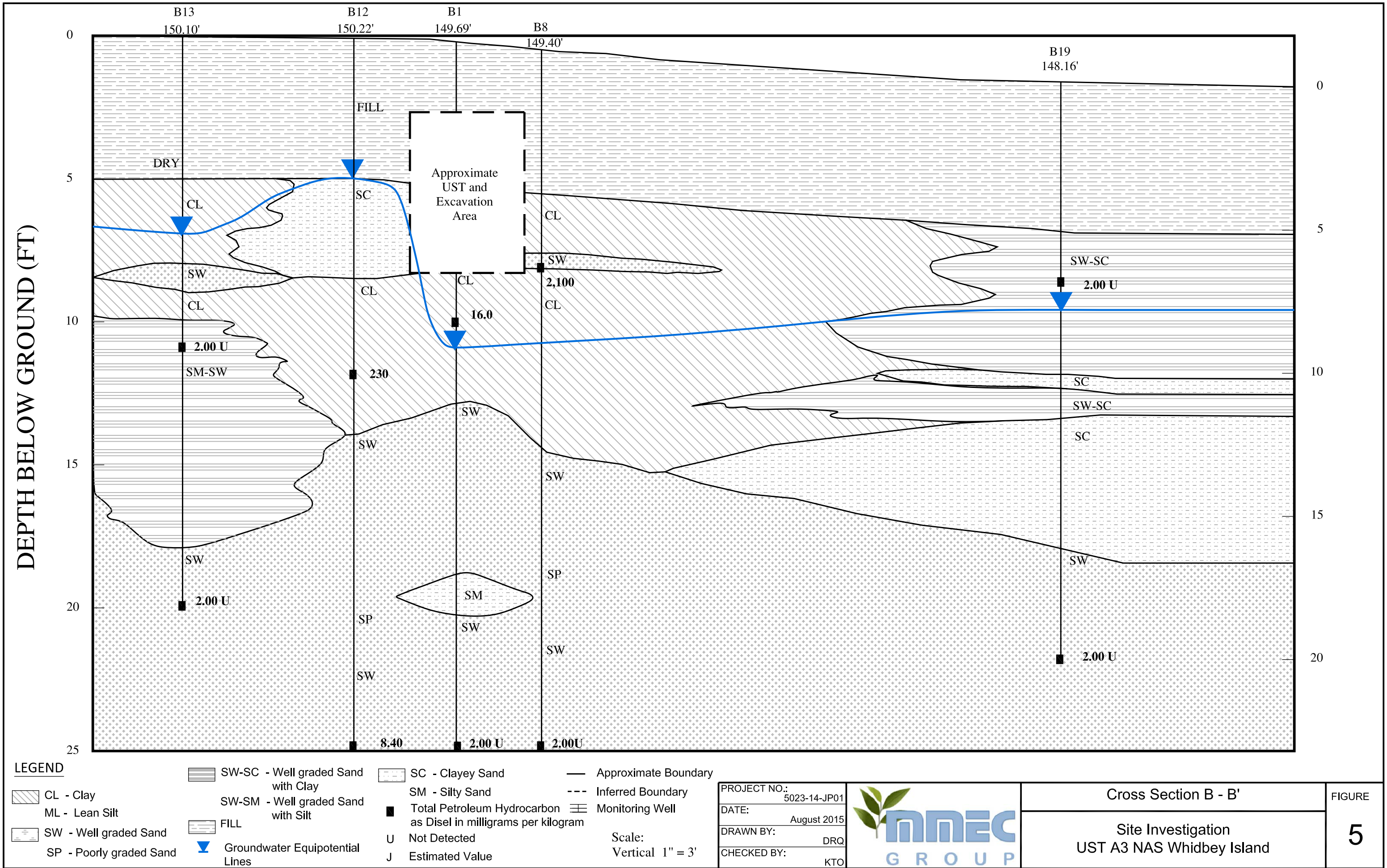
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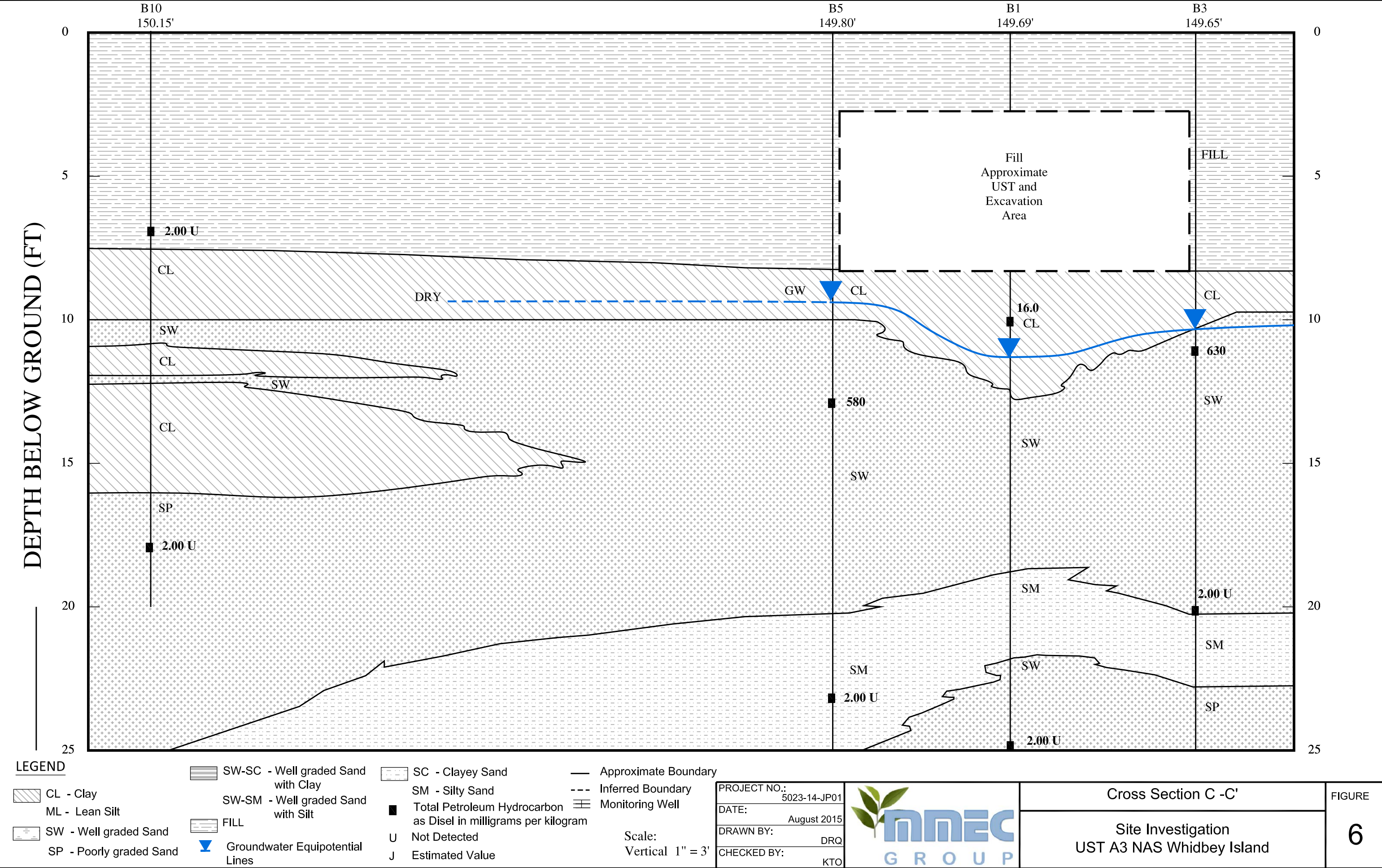
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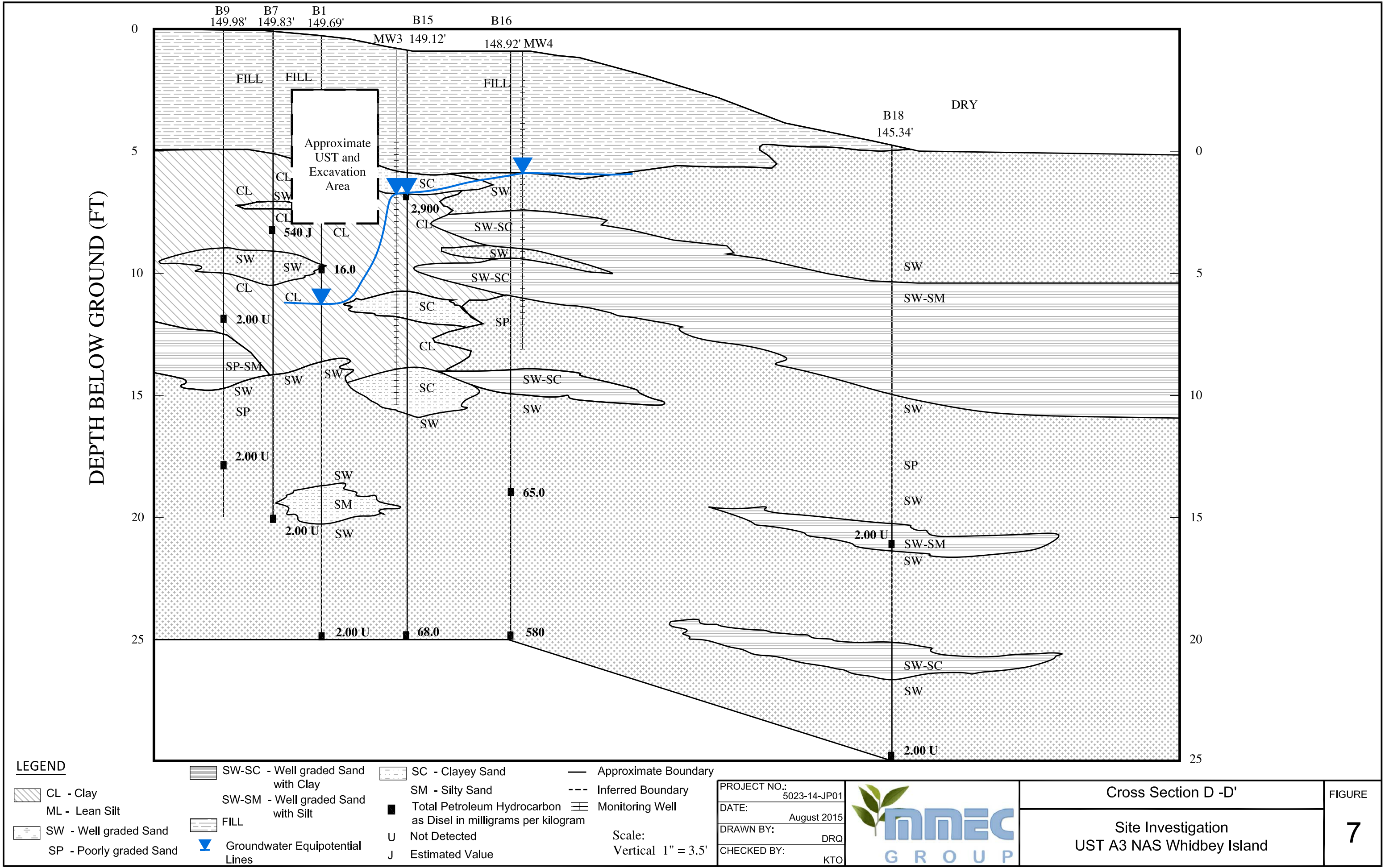
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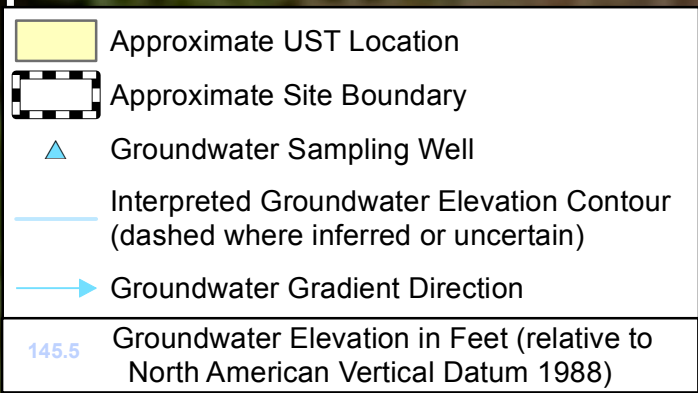
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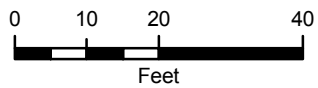
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Ault Field Road

Langley Boulevard

PROJECT :
 N62473-12-D-2012
 DATE: August 2015
 DRAWN BY: SB
 CHECKED BY: KTO



SUBSURFACE SITE INVESTIGATION
 A3 SITE UNDERGROUND STORAGE TANK
 NAS Whidbey Island
 Oak Harbor, Washington

Groundwater Elevations
 April 2015

Figure
 8

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- Boring Location
- ▲ Groundwater Sampling Well
- Approximate UST Location
- Approximate Site Boundary

Notes:

Results are in milligrams per kilogram (mg/kg)
 Sample depths are in feet below ground surface
 TPH-d = Total petroleum hydrocarbons as diesel
 TPH-g = Total petroleum hydrocarbons as gasoline
 J = estimated concentration
 U = not detected at or above the laboratory detection limit listed

Method A Cleanup Level: TPH-d = 2,000 mg/kg;
 TPH-g = 100 mg/kg, or 30 mg/kg if benzene is present; naphthalene = 5 mg/kg.
 Shaded results exceed the Washington State Department of Ecology, Method A Cleanup Level.

A3B15		
Sample Depth	6	25
TPH-d	2,900	68.0
TPH-g	690 J	2.20
Naphthalene	0.800 J	0.00320 J

A3B14		
Sample Depth	14	25
TPH-d	1,300	3.10 J
TPH-g	260	0.0970
Naphthalene	0.310 J	0.000860 J

A3B2		
Sample Depth	13	25
TPH-d	810	2.00 U
TPH-g	30.0	0.0520 U
Naphthalene	0.00710 J	0.00220 U

A3B12		
Sample Depth	12	25
TPH-d	230	8.40
TPH-g	120	0.0440 J
Naphthalene	0.160 U	0.00170 U

A3B1		
Sample Depth	10	25
TPH-d	16.0	2.00 U
TPH-g	270	0.0490 U
Naphthalene	0.210 J	0.00190 U

A3B3		
Sample Depth	11	20
TPH-d	630	2.00 U
TPH-g	580	0.0530 U
Naphthalene	1.30 J	0.00210 U

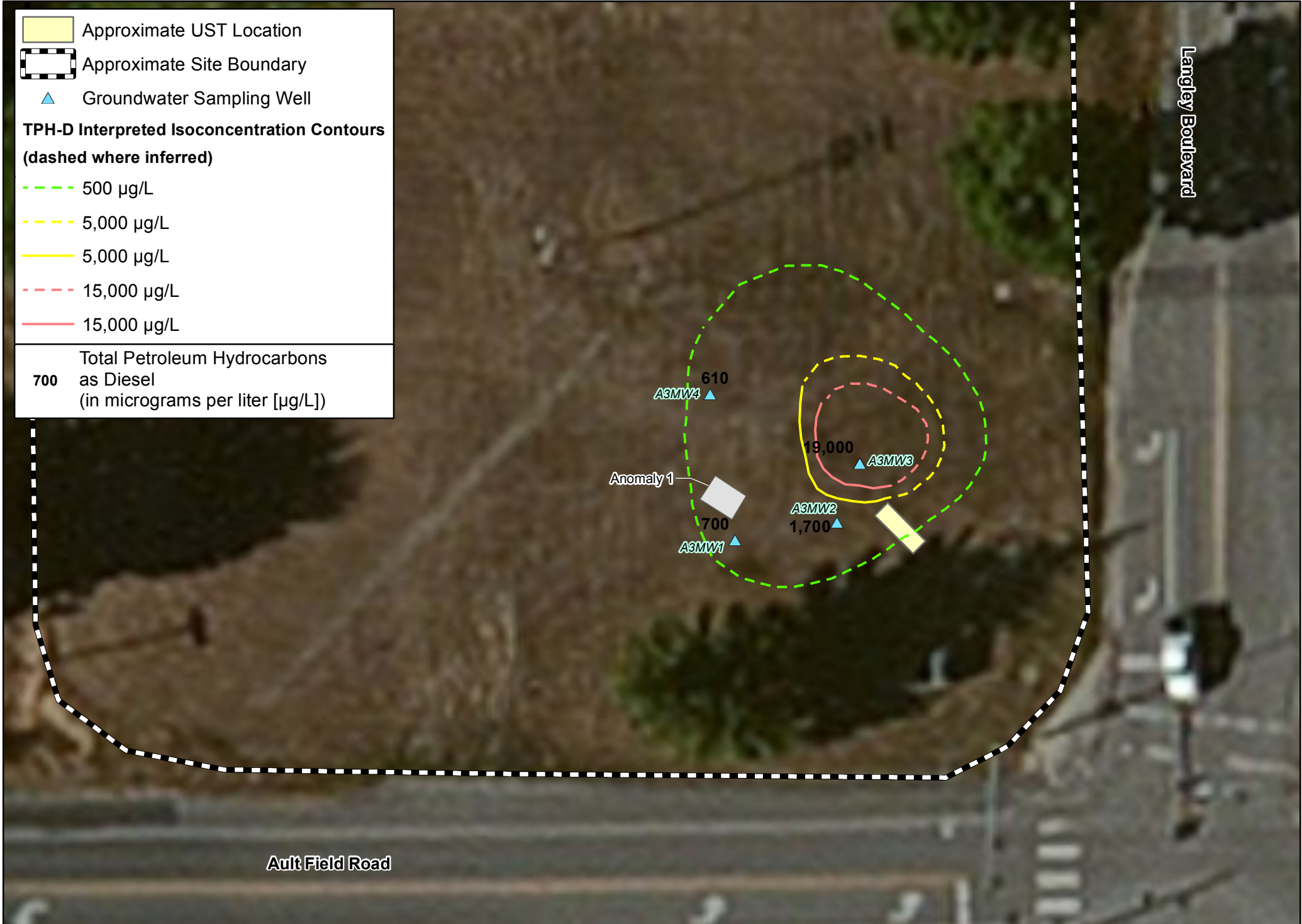
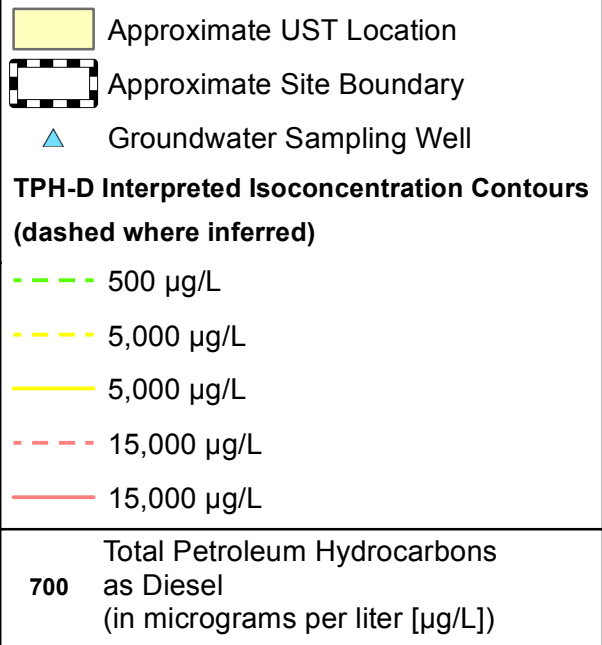
A3B8		
Sample Depth	8	24
TPH-d	2,100	2.00 U
TPH-g	350	0.0480 U
Naphthalene	0.670 J	0.400 J

A3B4		
Sample Depth	13	20
TPH-d	4,000	2.00 U
TPH-g	1,400	0.0520 U
Naphthalene	1.40 J	0.00200 U

A3B6		
Sample Depth	10	25
TPH-d	26,000	2.00 U
TPH-g	1,500	0.0480 U
Naphthalene	5.10	0.00210 U

A3B5		
Sample Depth	13	23
TPH-d	580	2.00 U
TPH-g	3,300	0.0480 U
Naphthalene	6.10 J	0.00210 U

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Table 8	Groundwater Sample Analysis Summary Table – Total Lead

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Table 1
Borehole Summary

Boring Number	Date Drilled and Total Depth	Soil Sample Depth	Soil Sample Analysis Performed	Estimated Volume of Bentonite Used to Fill Borehole	NAD 83/07 Northing	NAD 83 Easting	NAVD 88 Elevation
	(depth in feet bgs)	(feet bgs)			(decimal feet)	(decimal feet)	(decimal feet)
A3B1	4/6/2015; 25 feet bgs	10	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489051.70	1193692.35	149.69
		25	TPH-d, TPH-g, VOCs & total lead				
A3B2	4/6/2015; 25 feet bgs	13	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489051.58	1193686.61	149.72
		25	TPH-d, TPH-g, VOCs & total lead				
A3B3	4/6/2015; 20 feet bgs	11	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489057.01	1193692.45	149.65
		20	TPH-d, TPH-g, VOCs & total lead				
A3B4	4/6/2015; 20 feet bgs	13	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489050.68	1193699.18	149.73
		20	TPH-d, TPH-g, VOCs & total lead				
A3B5	4/6/2015; 25 feet bgs	13	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489046.90	1193692.80	149.80
		23	TPH-d, TPH-g, VOCs & total lead				
A3B6	4/7/2015; 25 feet bgs	10	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489051 .86	1193708.52	149.60
		25	TPH-d, TPH-g, VOCs & total lead				
A3B7	4/7/2015; 20 feet bgs	8	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489045.83	1193700.94	149.83
		20	TPH-d, TPH-g, VOCs & total lead				

Table 1 (continued)
Borehole Summary

Boring Number	Date Drilled and Total Depth	Soil Sample Depth	Soil Sample Analysis Performed	Estimated Volume of Bentonite Used to Fill Borehole	NAD 83/07 Northing	NAD 83 Easting	NAVD 88 Elevation
	(depth in feet bgs)	(feet bgs)			(decimal feet)	(decimal feet)	(decimal feet)
A3B8	4/7/2015; 25 feet bgs	8	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489058.21	1193699.42	149.40
		24	TPH-d, TPH-g, VOCs & total lead				
A3B9	4/7/2015; 20 feet bgs	12	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489039.40	1193709.73	149.98
		18	TPH-d, TPH-g, VOCs & total lead				
A3B10	4/7/2015; 20 feet bgs	7	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489021 .51	1193692.19	150.15
		18	TPH-d, TPH-g, VOCs & total lead				
A3B11	4/7/2015; 20 feet bgs	10	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489048.97	1193730.77	149.62
		18	TPH-d, TPH-g, VOCs & total lead				
A3B12	4/8/2015; 25 feet bgs	12	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489043.79	1193685.56	150.22
		25	TPH-d, TPH-g, VOCs & total lead				
A3B13	4/8/2015; 20 feet bgs	11	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489031 .89	1193669.85	150.10
		20	TPH-d, TPH-g, VOCs & total lead				
A3B14	4/8/2015; 25 feet bgs	14	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489051 .83	1193676.47	149.87
		25	TPH-d, TPH-g, VOCs & total lead				

Table 1 (continued)
Borehole Summary

Boring Number	Date Drilled and Total Depth	Soil Sample Depth	Soil Sample Analysis Performed	Estimated Volume of Bentonite Used to Fill Borehole	NAD 83/07 Northing	NAD 83 Easting	NAVD 88 Elevation
	(depth in feet bgs)	(feet bgs)			(decimal feet)	(decimal feet)	(decimal feet)
A3B15	4/8/2015; 25 feet bgs	6	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489066.04	1193678.01	149.12
		25	TPH-d, TPH-g, VOCs & total lead				
A3B16	4/8/2015; 25 feet bgs	18	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489084.19	1193661.79	148.92
		25	TPH-d, TPH-g, VOCs & total lead				
A3B17	4/10/2015; 25 feet bgs	20	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489052.45	1193635.00	149.67
		25	TPH-d, TPH-g, VOCs & total lead				
A3B18	4/10/2015; 25 feet bgs	16	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489158.54	1193614.16	145.34
		25	TPH-d, TPH-g, VOCs & total lead				
A3B19	4/10/2015; 20 feet bgs	7	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489114.89	1193734.12	148.06
		20	TPH-d, TPH-g, VOCs & total lead				
A3B20	4/10/2015; 25 feet bgs	20	TPH-d, TPH-g, VOCs & total lead	0.6 (50 lb bag)	489054.22	1193607.79	149.45
		25	TPH-d, TPH-g, VOCs & total lead				

Notes:

1. Drilling Contractor: Cascade Drilling, LP

2. Survey conducted on 4/10/2015 by True North Land Surveying, Inc.

3. Elevation in feet above mean sea level

bgs = below ground surface; lb = pound; NAD83/07 = North American Datum 1983/2007; NAVD88 = North American Vertical Datum 1988; TPH-d = diesel range total petroleum hydrocarbons; TPH-g = gasoline range total petroleum hydrocarbons; VOC = volatile organic compound

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Table 2
Temporary Well Construction Details

Well ID	Well Type	Date Installed	Date Destroyed	NAD 83/07 Northing	NAD 83 Easting	Top of Casing NAVD 88 Elevation	Ground NAVD 88 Elevation	Casing Diameter	Casing Type	Screen Interval	Screen Slot Size	Filter Pack Material	Constructed Total Depth	Borehole Diameter	Installation Method
				(decimal feet)	(decimal feet)	(decimal feet)	(decimal feet)	(inches)		(feet bgs)	(inches)			(inches)	
A3MW1	Monitoring	4/9/2015	4/10/2015	489049.93	1193656.39	150.33	149.94	0.75	Sch 40 PVC	0-10	0.01	#2/12 Sand	10	2.75	GeoProbe 7730DT Macro Croe
A3MW2	Monitoring	4/9/2015	4/10/2015	489053.30	1193679.21	152.14	149.94	0.75	Sch 40 PVC	3-13	0.01	#2/12 Sand	14	2.75	GeoProbe 7730DT Macro Croe
A3MW3	Monitoring	4/9/2015	4/10/2015	489066.29	1193684.77	150.50	149.34	0.75	Sch 40 PVC	4-14	0.01	#2/12 Sand	15	2.75	GeoProbe 7730DT Macro Croe
A3MW4	Monitoring	4/9/2015	4/10/2015	489082.75	1193651.71	151.86	148.96	0.75	Sch 40 PVC	2-12	0.01	#2/12 Sand	14	2.75	GeoProbe 7730DT Macro Croe

Notes:

1. Drilling Contractor: Cascade Drilling, LP
 2. Survey conducted on 4/10/2015 by True North Land Surveying, Inc.
 3. Elevation in feet above mean sea level
- bgs = below ground surface; PVC = polyvinyl chloride; NAD83/07 = North American Datum 1983/2007; NAVD88 = North American Vertical Datum 1988

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Table 3
Soil Sample Analysis Summary Table - Volatile Organic Compounds

			1,1,1,2-TETRACHLOROETHANE	1,1,1-TRICHLOROETHANE	1,1,2,2-TETRACHLOROETHANE	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	1,1,2-TRICHLOROETHANE	1,1-DICHLOROETHANE	1,1-DICHLOROETHENE	1,1-DICHLOROPROPENE	1,2,3-TRICHLOROBENZENE	1,2,3-TRICHLOROPROPANE	1,2,4-TRICHLOROBENZENE	1,2,4-TRIMETHYLBENZENE	1,2-DIBROMO-3-CHLOROPROPANE	1,2-DIBROMOETHANE	1,2-DICHLOROBENZENE	1,2-DICHLOROETHANE	1,2-DICHLOROPROPANE	1,3,5-TRIMETHYLBENZENE	1,3-DICHLOROBENZENE	1,3-DICHLOROPROPANE
Method A Screening Level ¹			NA	2,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5	NA	NA	NA	NA	NA	NA
Sample ID	Sample Date	Depth (ft)	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
A3B1-SO-10	4/6/2015	10	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	160 U	160 U	41 U	160 U	160 U	41 U	41 U	41 U	41 U	160 U	41 U	41 U
A3B1-SO-25	4/6/2015	25	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	1.9 U	1.9 U	0.48 U	1.9 U	1.9 U	0.48 U	0.48 U	0.48 U	0.48 U	1.9 U	0.48 U	0.48 U
A3B2-SO-13	4/6/2015	13	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	1.5 U	1.5 U	0.38 U	0.57 J	1.5 U	0.38 U	0.38 U	0.38 U	0.38 U	1.5 U	0.38 U	0.38 U
A3B2-SO-25	4/6/2015	25	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	0.55 U	2.2 U	2.2 U	0.55 U	2.2 U	2.2 U	0.55 U	0.55 U	0.55 U	0.55 U	2.2 U	0.55 U	0.55 U
A3B3-SO-11	4/6/2015	11	72 U	72 U	72 U	72 U	72 U	72 U	72 U	72 U	290 U	290 U	72 U	290 U	290 U	72 U	72 U	72 U	72 U	290 U	72 U	72 U
A3B3-SO-20	4/6/2015	20	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	2.1 U	2.1 U	0.53 U	2.1 U	2.1 U	0.53 U	0.53 U	0.53 U	0.53 U	2.1 U	0.53 U	0.53 U
A3B4-SO-13	4/6/2015	13	77 U	77 U	77 U	77 U	77 U	77 U	77 U	77 U	310 U	310 U	77 U	790 J	310 U	77 U	77 U	77 U	77 U	330 J	77 U	77 U
A3B4-SO-20	4/6/2015	20	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	2 U	2 U	0.51 U	2 U	2 U	0.51 U	0.51 U	0.51 U	0.51 U	2 U	0.51 U	0.51 U
A3B5-SO-13	4/6/2015	13	160 U	160 U	160 U	160 U	160 U	160 U	160 U	160 U	650 U	650 U	160 U	1200 J	650 U	160 U	160 U	160 U	160 U	4100	160 U	160 U
A3B5-SO-23	4/6/2015	23	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	2.1 U	2.1 U	0.52 U	2.1 U	2.1 U	0.52 U	0.52 U	0.52 U	0.52 U	2.1 U	0.52 U	0.52 U
A3B6-SO-10	4/7/2015	10	84 U	84 U	84 U	84 U	84 U	84 U	84 U	84 U	340 U	340 U	84 U	4500	340 U	84 U	84 U	84 U	84 U	340 U	84 U	84 U
A3B6-SO-25	4/7/2015	25	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	2.1 U	2.1 U	0.53 U	2.1 U	2.1 U	0.53 U	0.53 U	0.53 U	0.53 U	2.1 U	0.53 U	0.53 U
A3B7-SO-8	4/7/2015	8	41 U	41 U	41 U	41 U	41 U	41 U	41 U	41 U	160 U	160 U	41 U	160 U	160 U	41 U	41 U	41 U	41 U	160 U	41 U	41 U
A3B7-SO-20	4/7/2015	20	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	2.1 U	2.1 U	0.52 U	2.1 U	2.1 U	0.52 U	0.52 U	0.52 U	0.52 U	2.1 U	0.52 U	0.52 U
A3B8-SO-8	4/7/2015	8	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	160 U	160 U	39 U	83	160 U	39 U	39 U	39 U	39 U	57 J	39 U	39 U
A3B8-SO-24	4/7/2015	24	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	0.48 U	1.9 U	1.9 U	0.48 U	1.9 U	1.9 U	0.48 U	0.48 U	0.48 U	0.48 U	1.9 U	0.48 U	0.48 U
A3B9-SO-12	4/7/2015	12	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	0.38 U	1.5 U	1.5 U	0.38 U	1.5 U	1.5 U	0.38 U	0.38 U	0.38 U	0.38 U	1.5 U	0.38 U	0.38 U
A3B9-SO-18	4/7/2015	18	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	2 U	2 U	0.51 U	2 U	2 U	0.51 U	0.51 U	0.51 U	0.51 U	2 U	0.51 U	0.51 U
A3B10-SO-7	4/7/2015	7	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	0.41 U	1.6 U	1.6 U	0.41 U	1.6 U	1.6 U	0.41 U	0.41 U	0.41 U	0.41 U	1.6 U	0.41 U	0.41 U
A3B10-SO-18	4/7/2015	18	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	0.52 U	2.1 U	2.1 U	0.52 U	2.1 U	2.1 U	0.52 U	0.52 U	0.52 U	0.52 U	2.1 U	0.52 U	0.52 U
A3B11-SO-10	4/7/2015	10	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	0.39 U	1.6 U	1.6 U	0.39 U	1.6 U	1.6 U	0.39 U	0.39 U	0.39 U	0.39 U	1.6 U	0.39 U	0.39 U
A3B11-SO-18	4/7/2015	18	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	0.45 U	1.8 U	1.8 U	0.45 U	1.8 U	1.8 U	0.45 U	0.45 U	0.45 U	0.45 U	1.8 U	0.45 U	0.45 U
A3B12-SO-12	4/8/2015	12	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	160 U	160 U	39 U	160 U	160 U	39 U	39 U	39 U	39 U	160 U	39 U	39 U
A3B12-SO-25	4/8/2015	25	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	0.43 U	1.7 U	1.7 U	0.43 U	1.7 U	1.7 U	0.43 U	0.43 U	0.43 U	0.43 U	1.7 U	0.43 U	0.43 U
A3B13-SO-11	4/8/2015	11	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	1.6 U	1.6 U	0.4 U	1.6 U	1.6 U	0.4 U	0.4 U	0.4 U	0.4 U	1.6 U	0.4 U	0.4 U
A3B13-SO-20	4/8/2015	20	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	0.46 U	1.9 U	1.9 U	0.46 U	1.9 U	1.9 U	0.46 U	0.46 U	0.46 U	0.46 U	1.9 U	0.46 U	0.46 U
A3B14-SO-14	4/8/2015	14	39 U	39 U	39 U	39 U	39 U	39 U	39 U	39 U	150 U	150 U	39 U	150 U	150 U	39 U	39 U	39 U	39 U	150 U	39 U	39 U
A3B14-SO-25	4/8/2015	25	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	0.42 U	1.7 U	1.7 U	0.42 U	1.7 U	1.7 U	0.42 U	0.42 U	0.42 U	0.42 U	1.7 U	0.42 U	0.42 U
A3B15-SO-6	4/8/2015	6	100 U	100 U	100 U	100 U	100 U	100 U	100 U	100 U	420 U	420 U	100 U	300 J	420 U	100 U	100 U	100 U	100 U	420 U	100 U	100 U
A3B15-SO-25	4/8/2015	25	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	0.53 U	2.1 U	2.1 U	0.53 U	0.72 J	2.1 U	0.53 U	0.53 U	0.53 U	0.53 U	2.1 U	0.53 U	0.53 U
A3B16-SO-18	4/8/2015	18	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	200 U	200 U	50 U	170 J	200 U	50 U	50 U	50 U	50 U	59 J	50 U	50 U
A3B16-SO-25	4/8/2015	25	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	0.51 U	2 U	2 U	0.51 U	2 U	2 U	0.51 U	0.51 U	0.51 U	0.51 U	2 U	0.51 U	0.51 U
A3B17-SO-20	4/10/2015	20	0.49 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.49 UJ	2 UJ	2 UJ	0.49 UJ	2 UJ	2 UJ	0.49 UJ	0.49 UJ	0.49 UJ	0.49 UJ	2 UJ	0.49 UJ	0.49 UJ
A3B17-SO-25	4/10/2015	25	0.53 UJ	0.53 UJ	0.53 UJ	0.53 UJ	0.53 UJ	0.53 UJ	0.53 UJ	0.53 UJ	2.1 UJ	2.1 UJ	0.53 UJ	2.1 UJ	2.1 UJ	0.53 UJ	0.53 UJ	0.53 UJ	0.53 UJ	2.1 UJ	0.53 UJ	0.53 UJ
A3B18-SO-16	4/10/2015	16	0.64 UJ	0.64 UJ	0.64 UJ	0.64 UJ	0.64 UJ	0.64 UJ	0.64 UJ	0.64 UJ	2.6 UJ	2.6 UJ	0.64 UJ	2.6 UJ	2.6 UJ	0.64 UJ	0.64 UJ	0.64 UJ	0.64 UJ	2.6 UJ	0.64 UJ	0.64 UJ
A3B18-SO-25	4/10/2015	25	0.48 UJ	0.48 UJ	0.48 UJ	0.48 UJ	0.48 UJ	0.48 UJ	0.48 UJ	0.48 UJ	1.9 UJ	1.9 UJ	0.48 UJ	1.9 UJ	1.9 UJ	0.48 UJ	0.48 UJ	0.48 UJ	0.48 UJ	1.9 UJ	0.48 UJ	0.48 UJ
A3B19-SO-7	4/10/2015	7	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	1.5 UJ	1.5 UJ	0.39 UJ	1.5 UJ	1.5 UJ	0.39 UJ	0.39 UJ	0.39 UJ	0.39 UJ	1.5 UJ	0.39 UJ	0.39 UJ
A3B19-SO-20	4/10/2015	20	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	1.8 UJ	1.8 UJ	0.44 UJ	1.8 UJ	1.8 UJ	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	1.8 UJ	0.44 UJ	0.44 UJ
A3B20-SO-20	4/10/2015	20	0.52 UJ	0.52 UJ	0.52 UJ	0.52 UJ	0.52 UJ	0.52 UJ	0.52 UJ	0.52 UJ	2.1 UJ	2.1 UJ	0.52 UJ	2.1 UJ	2.1 UJ	0.52 UJ	0.52 UJ	0.52 UJ	0.52 UJ	2.1 UJ	0.52 UJ	0.52 UJ
A3B20-SO-25	4/10/2015	25	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	1.9 UJ	1.9 UJ	0.47 UJ	1.9 UJ	1.9 UJ	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	1.9 UJ	0.47 UJ	0.47 UJ

Notes:
BOLD = detection
Results have been validated
mg/kg = milligrams per kilogram
NA = not available
1. Screening level values from Soil Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.
 Result exceeds Soil Method A Screening Level

Data Qualifier (where appropriate):
J = estimated concentration
U = not detected at or above the laboratory detection limit listed

Table 3
Soil Sample Analysis Summary Table - Volatile Organic Compounds

			1,4-DICHLOROBENZENE	2,2-DICHLOROPROPANE	2-BUTANONE	2-CHLOROTOLUENE	2-HEXANONE	4-CHLOROTOLUENE	4-ISOPROPYLTOLUENE	4-METHYL-2-PENTANONE	ACETONE	BENZENE	BROMOBENZENE	BROMOCHLOROMETHANE	BROMODICHLOROMETHANE	BROMOFORM	BROMOMETHANE	CARBON DISULFIDE	CARBON TETRACHLORIDE	CHLOROBENZENE	CHLOROETHANE	CHLOROFORM	CHLOROMETHANE
Method A Screening Level ¹			NA	NA	NA	NA	NA	NA	NA	NA	NA	30	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sample ID	Sample Date	Depth (ft)	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
A3B1-SO-10	4/6/2015	10	41 U	41 U	41 UJ	41 U	160 U	41 U	210 J	41 U	810 UJ	160 U	41 U	160 U	41 U	160 UJ	810 UJ	41 U	41 U	41 U	160 U	41 U	41 U
A3B1-SO-25	4/6/2015	25	0.48 U	0.48 U	0.48 UJ	0.48 U	1.9 U	0.48 U	1.9 U	0.48 U	9.7 UJ	1.9 U	0.48 U	1.9 U	0.48 U	1.9 UJ	9.7 UJ	0.48 U	0.48 U	0.48 U	1.9 U	0.48 U	0.48 U
A3B2-SO-13	4/6/2015	13	0.38 U	0.38 U	3.9 J	0.38 U	1.5 U	0.38 U	29	0.38 U	23 J	0.14 J	0.38 U	1.5 U	0.38 U	1.5 UJ	7.6 UJ	0.38 U	0.38 U	0.38 U	1.5 U	0.38 U	0.38 U
A3B2-SO-25	4/6/2015	25	0.55 U	0.55 U	0.55 UJ	0.55 U	2.2 U	0.55 U	2.2 U	0.55 U	11 UJ	2.2 U	0.55 U	2.2 U	0.55 U	2.2 UJ	11 UJ	0.55 U	0.55 U	0.55 U	2.2 U	0.55 U	0.55 U
A3B3-SO-11	4/6/2015	11	72 U	72 U	72 UJ	72 U	290 U	72 U	140 J	72 U	1400 UJ	290 U	72 U	290 U	72 U	290 UJ	1400 UJ	72 U	72 U	72 U	290 U	72 U	72 U
A3B3-SO-20	4/6/2015	20	0.53 U	0.53 U	0.53 UJ	0.53 U	2.1 U	0.53 U	2.1 U	0.53 U	11 UJ	2.1 U	0.53 U	2.1 U	0.53 U	2.1 UJ	11 UJ	0.53 U	0.53 U	0.53 U	2.1 U	0.53 U	0.53 U
A3B4-SO-13	4/6/2015	13	77 U	77 U	77 UJ	77 U	310 U	77 U	1700 J	77 U	1500 UJ	310 U	77 U	310 U	77 U	310 UJ	1500 UJ	77 U	77 U	77 U	310 U	77 U	77 U
A3B4-SO-20	4/6/2015	20	0.51 U	0.51 U	0.51 UJ	0.51 U	2 U	0.51 U	2 U	0.51 U	10 UJ	2 U	0.51 U	2 U	0.51 U	2 UJ	10 UJ	0.51 U	0.51 U	0.51 U	2 U	0.51 U	0.51 U
A3B5-SO-13	4/6/2015	13	160 U	160 U	160 UJ	160 U	650 U	160 U	3400 J	160 U	3300 UJ	650 U	160 U	650 U	160 U	650 UJ	3300 UJ	160 U	160 U	160 U	650 U	160 U	160 U
A3B5-SO-23	4/6/2015	23	0.52 U	0.52 U	0.52 UJ	0.52 U	2.1 U	0.52 U	2.1 U	0.52 U	10 UJ	2.1 U	0.52 U	2.1 U	0.52 U	2.1 UJ	10 UJ	0.52 U	0.52 U	0.52 U	2.1 U	0.52 U	0.52 U
A3B6-SO-10	4/7/2015	10	84 U	84 U	84 UJ	84 U	340 U	84 U	1800 J	84 U	1700 UJ	340 U	84 U	340 U	84 U	340 UJ	1700 UJ	84 U	84 U	84 U	340 U	84 U	84 U
A3B6-SO-25	4/7/2015	25	0.53 U	0.53 U	0.53 UJ	0.53 U	2.1 U	0.53 U	2.1 U	0.53 U	11 UJ	2.1 U	0.53 U	2.1 U	0.53 U	2.1 UJ	11 UJ	0.53 U	0.53 U	0.53 U	2.1 U	0.53 U	0.53 U
A3B7-SO-8	4/7/2015	8	41 U	41 U	41 UJ	41 U	160 U	41 U	160 U	41 U	810 UJ	160 U	41 U	160 U	41 U	160 UJ	810 UJ	41 U	41 U	41 U	160 U	41 U	41 U
A3B7-SO-20	4/7/2015	20	0.52 U	0.52 U	0.52 UJ	0.52 U	2.1 U	0.52 U	2.1 U	0.52 U	10 UJ	2.1 U	0.52 U	2.1 U	0.52 U	2.1 UJ	10 UJ	0.52 U	0.52 U	0.52 U	2.1 U	0.52 U	0.52 U
A3B8-SO-8	4/7/2015	8	39 U	39 U	39 UJ	39 U	160 U	39 U	310 J	39 U	780 UJ	160 U	39 U	160 U	39 U	160 UJ	780 UJ	39 U	39 U	39 U	160 U	39 U	39 U
A3B8-SO-24	4/7/2015	24	0.48 U	0.48 U	0.48 UJ	0.48 U	1.9 U	0.48 U	1.9 U	0.48 U	9.5 UJ	1.9 U	0.48 U	1.9 U	0.48 U	1.9 UJ	9.5 UJ	0.48 U	0.48 U	0.48 U	1.9 U	0.48 U	0.48 U
A3B9-SO-12	4/7/2015	12	0.38 U	0.38 U	0.38 UJ	0.38 U	1.5 U	0.38 U	1.5 U	0.38 U	7.6 UJ	1.5 U	0.38 U	1.5 U	0.38 U	1.5 UJ	7.6 UJ	0.38 U	0.38 U	0.38 U	1.5 U	0.38 U	0.38 U
A3B9-SO-18	4/7/2015	18	0.51 U	0.51 U	0.51 UJ	0.51 U	2 U	0.51 U	2 U	0.51 U	10 UJ	2 U	0.51 U	2 U	0.51 U	2 UJ	10 UJ	0.51 U	0.51 U	0.51 U	2 U	0.51 U	0.51 U
A3B10-SO-7	4/7/2015	7	0.41 U	0.41 U	0.41 UJ	0.41 U	1.6 U	0.41 U	1.6 U	0.41 U	8.2 UJ	1.6 U	0.41 U	1.6 U	0.41 U	1.6 UJ	8.2 UJ	0.41 U	0.41 U	0.41 U	1.6 U	0.41 U	0.41 U
A3B10-SO-18	4/7/2015	18	0.52 U	0.52 U	0.52 UJ	0.52 U	2.1 U	0.52 U	2.1 U	0.52 U	10 UJ	2.1 U	0.52 U	2.1 U	0.52 U	2.1 UJ	10 UJ	0.52 U	0.52 U	0.52 U	2.1 U	0.52 U	0.52 U
A3B11-SO-10	4/7/2015	10	0.39 U	0.39 U	0.39 UJ	0.39 U	1.6 U	0.39 U	1.6 U	0.39 U	5.8 J	0.14 J	0.39 U	1.6 U	0.39 U	1.6 UJ	7.8 UJ	0.46 J	0.39 U	0.39 U	1.6 U	0.39 U	0.39 U
A3B11-SO-18	4/7/2015	18	0.45 U	0.45 U	0.45 UJ	0.45 U	1.8 U	0.45 U	1.8 U	0.45 U	7.1 J	1.8 U	0.45 U	1.8 U	0.45 U	1.8 UJ	8.9 UJ	0.45 U	0.45 U	0.45 U	1.8 U	0.45 U	0.45 U
A3B12-SO-12	4/8/2015	12	39 U	39 U	39 UJ	39 U	160 U	39 U	57 J	39 U	780 UJ	160 U	39 U	160 U	39 U	160 UJ	780 UJ	39 U	39 U	39 U	160 U	39 U	39 U
A3B12-SO-25	4/8/2015	25	0.43 U	0.43 U	0.43 UJ	0.43 U	1.7 U	0.43 U	1.7 U	0.43 U	6.5 J	1.7 U	0.43 U	1.7 U	0.43 U	1.7 UJ	8.5 UJ	0.43 U	0.43 U	0.43 U	1.7 U	0.43 U	0.43 U
A3B13-SO-11	4/8/2015	11	0.4 U	0.4 U	0.4 UJ	0.4 U	1.6 U	0.4 U	1.6 U	0.4 U	7.9 UJ	1.6 U	0.4 U	1.6 U	0.4 U	1.6 UJ	7.9 UJ	0.4 U	0.4 U	0.4 U	1.6 U	0.4 U	0.4 U
A3B13-SO-20	4/8/2015	20	0.46 U	0.46 U	0.46 UJ	0.46 U	1.9 U	0.46 U	1.9 U	0.46 U	7.2 J	1.9 U	0.46 U	1.9 U	0.46 U	1.9 UJ	9.3 UJ	0.46 U	0.46 U	0.46 U	1.9 U	0.46 U	0.46 U
A3B14-SO-14	4/8/2015	14	39 U	39 U	39 UJ	39 U	150 U	39 U	150 U	39 U	770 UJ	150 U	39 U	150 U	39 U	150 UJ	770 UJ	39 U	39 U	39 U	150 U	39 U	39 U
A3B14-SO-25	4/8/2015	25	0.42 U	0.42 U	0.42 UJ	0.42 U	1.7 U	0.42 U	1.7 U	0.42 U	7.3 J	1.7 U	0.42 U	1.7 U	0.42 U	1.7 UJ	8.3 UJ	0.42 U	0.42 U	0.42 U	1.7 U	0.42 U	0.42 U
A3B15-SO-6	4/8/2015	6	100 U	100 U	100 UJ	100 U	420 U	100 U	420 U	100 U	2100 UJ	420 U	100 U	420 U	100 U	420 UJ	2100 UJ	100 U	100 U	100 U	420 U	100 U	100 U
A3B15-SO-25	4/8/2015	25	0.53 U	0.53 U	0.53 UJ	0.53 U	2.1 U	0.53 U	2.1 U	0.53 U	11 J	2.1 U	0.53 U	2.1 U	0.53 U	2.1 UJ	11 UJ	0.53 U	0.53 U	0.53 U	2.1 U	0.53 U	0.53 U
A3B16-SO-18	4/8/2015	18	50 U	50 U	50 UJ	50 U	200 U	50 U	200 U	50 U	990 UJ	200 U	50 U	200 U	50 U	200 UJ	990 UJ	50 U	50 U	50 U	200 U	50 U	50 U
A3B16-SO-25	4/8/2015	25	0.51 U	0.51 U	0.51 UJ	0.51 U	2 U	0.51 U	2 U	0.51 U	15 J	2 U	0.51 U	2 U	0.51 U	2 UJ	10 UJ	0.51 U	0.51 U	0.51 U	2 U	0.51 U	0.51 U
A3B17-SO-20	4/10/2015	20	0.49 UJ	0.49 UJ	0.49 UJ	0.49 UJ	2 UJ	0.49 UJ	2 UJ	0.49 UJ	6.5 J	2 UJ	0.49 UJ	2 UJ	0.49 UJ	2 UJJ	9.8 UJ	0.49 UJ	0.49 UJ	0.49 UJ	2 UJ	0.49 UJ	0.49 UJ
A3B17-SO-25	4/10/2015	25	0.53 UJ	0.53 UJ	0.53 UJ	0.53 UJ	2.1 UJ	0.53 UJ	2.1 UJ	0.53 UJ	9.0 J	2.1 UJ	0.53 UJ	2.1 UJ	0.53 UJ	2.1 UJ	11 UJ	0.53 UJ	0.53 UJ	0.53 UJ	2.1 UJ	0.53 UJ	0.53 UJ
A3B18-SO-16	4/10/2015	16	0.64 UJ	0.64 UJ	9.6 J	0.64 UJ	2.6 UJ	0.64 UJ	2.6 UJ	0.64 UJ	38 J	0.45 J	0.64 UJ	2.6 UJ	0.64 UJ	2.6 UJ	13 UJ	2.3 J	0.64 UJ	0.64 UJ	2.6 UJ	0.64 UJ	0.64 UJ
A3B18-SO-25	4/10/2015	25	0.48 UJ	0.48 UJ	0.48 UJ	0.48 UJ	1.9 UJ	0.48 UJ	1.9 UJ	0.48 UJ	9.6 UJ	1.9 UJ	0.48 UJ	1.9 UJ	0.48 UJ	1.9 UJ	9.6 UJ	0.48 UJ	0.48 UJ	0.48 UJ	1.9 UJ	0.48 UJ	0.48 UJ
A3B19-SO-7	4/10/2015	7	0.39 UJ	0.39 UJ	3.0 J	0.39 UJ	1.5 UJ	0.39 UJ	1.5 UJ	0.39 UJ	18 J	0.12 J	0.39 UJ	1.5 UJ	0.39 UJ	1.5 UJ	7.7 UJ	0.40 J	0.39 UJ	0.39 UJ	1.5 UJ	0.39 UJ	0.39 UJ
A3B19-SO-20	4/10/2015	20	0.44 UJ	0.44 UJ	0.44 UJ	0.44 UJ	1.8 UJ	0.44 UJ	1.8 UJ	0.44 UJ	8.8 UJ	1.8 UJ	0.44 UJ	1.8 UJ	0.44 UJ	1.8 UJ	8.8 UJ	0.44 UJ	0.44 UJ	0.44 UJ	1.8 UJ	0.44 UJ	0.44 UJ
A3B20-SO-20	4/10/2015	20	0.52 UJ	0.52 UJ	0.52 UJ	0.52 UJ	2.1 UJ	0.52 UJ	2.1 UJ	0.52 UJ	10 UJ	2.1 UJ	0.52 UJ	2.1 UJ	0.52 UJ	2.1 UJ	10 UJ	0.52 UJ	0.52 UJ	0.52 UJ	2.1 UJ	0.52 UJ	0.52 UJ
A3B20-SO-25	4/10/2015	25	0.47 UJ	0.47 UJ	0.47 UJ	0.47 UJ	1.9 UJ	0.47 UJ	1.9 UJ	0.47 UJ	9.4 UJ	1.9 UJ	0.47 UJ	1.9 UJ	0.47 UJ	1.9 UJ	9.4 UJ	0.47 UJ	0.47 UJ	0.47 UJ	1.9 UJ	0.47 UJ	0.47 UJ

Notes:
BOLD = detection
Results have been validated
mg/kg = milligrams per kilogram
NA = not available
1. Screening level values from Soil Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

Result exceeds Soil Method A Screening Level

Data Qualifier (where appropriate):
J = estimated concentration
U = not detected at or above the laboratory detection limit listed

Table 3
Soil Sample Analysis Summary Table - Volatile Organic Compounds

			CIS-1,2-DICHLOROETHENE	CIS-1,3-DICHLOROPRENE	DIBROMOCHLOROMETHANE	DIBROMOMETHANE	DICHLORODIFLUOROMETHANE	ETHANOL	ETHYL TERT-BUTYL ETHER	ETHYLBENZENE	HEXACHLOROBUTADIENE	ISOPROPYL ETHER	ISOPROPYLBENZENE	M- AND P-XYLENE	METHYL TERT-BUTYL ETHER	METHYLENE CHLORIDE	NAPHTHALENE	N-BUTYLBENZENE	O-XYLENE	PROPYLBENZENE	SEC-BUTYLBENZENE	STYRENE	T-AMYL METHYL ETHER
Method A Screening Level ¹			NA	NA	NA	NA	NA	NA	NA	6000	NA	NA	NA	9000	100	20	5000	NA	NA	NA	NA	NA	NA
Sample ID	Sample Date	Depth (ft)	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
A3B1-SO-10	4/6/2015	10	41 U	41 U	160 U	160 U	41 U	810 U	160 U	17 J	41 U	41 U	160 U	32 J	41 U	160 U	210 J	290 J	160 U	55 J	300 J	160 U	41 U
A3B1-SO-25	4/6/2015	25	0.48 U	0.48 U	1.9 U	1.9 U	0.48 U	9.7 U	1.9 U	1.9 U	0.48 U	0.48 U	1.9 U	0.39 UJ	0.48 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	0.48 U
A3B2-SO-13	4/6/2015	13	0.38 U	0.38 U	1.5 U	1.5 U	0.38 U	7.6 U	1.5 U	0.29 J	0.38 U	0.38 U	5.7 J	0.46 J	0.38 U	1.5 U	7.1 J	23	1.5 U	7.5 J	33	1.5 U	0.38 U
A3B2-SO-25	4/6/2015	25	0.55 U	0.55 U	2.2 U	2.2 U	0.55 U	11 U	2.2 U	2.2 U	0.55 U	0.55 U	2.2 U	0.44 UJ	0.55 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	0.55 U
A3B3-SO-11	4/6/2015	11	72 U	72 U	290 U	290 U	72 U	1400 U	290 U	300 J	72 U	72 U	290 J	55 J	72 U	290 U	1300 J	1100 J	290 U	730 J	1000 J	290 U	72 U
A3B3-SO-20	4/6/2015	20	0.53 U	0.53 U	2.1 U	2.1 U	0.53 U	11 U	2.1 U	2.1 U	0.53 U	0.53 U	2.1 U	0.42 UJ	0.53 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	0.53 U
A3B4-SO-13	4/6/2015	13	77 U	77 U	310 U	310 U	77 U	1500 U	310 U	310 U	77 U	77 U	150 J	89 J	77 U	310 U	1400 J	1200 J	190 J	310 U	1300 J	310 U	77 U
A3B4-SO-20	4/6/2015	20	0.51 U	0.51 U	2 U	2 U	0.51 U	10 U	2 U	2 U	0.51 U	0.51 U	2 U	0.41 UJ	0.51 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.51 U
A3B5-SO-13	4/6/2015	13	160 U	160 U	650 U	650 U	160 U	3300 U	650 U	650 U	160 U	160 U	530 J	90 J	160 U	650 U	6100 J	3900 J	490 J	260 J	2500 J	650 U	160 U
A3B5-SO-23	4/6/2015	23	0.52 U	0.52 U	2.1 U	2.1 U	0.52 U	10 U	2.1 U	2.1 U	0.52 U	0.52 U	2.1 U	0.41 UJ	0.52 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	0.52 U
A3B6-SO-10	4/7/2015	10	84 U	84 U	340 U	340 U	84 U	1700 U	340 U	500 J	84 U	84 U	660 J	510 J	84 U	340 U	5100	2000 J	340 U	1400 J	1300 J	340 U	84 U
A3B6-SO-25	4/7/2015	25	0.53 U	0.53 U	2.1 U	2.1 U	0.53 U	11 U	2.1 U	2.1 U	0.53 U	0.53 U	2.1 U	0.42 UJ	0.53 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	0.53 U
A3B7-SO-8	4/7/2015	8	41 U	41 U	160 U	160 U	41 U	810 U	160 U	160 U	41 U	41 U	160 U	36 J	41 U	160 U	160 U	160 U	160 U	160 U	60 J	160 U	41 U
A3B7-SO-20	4/7/2015	20	0.52 U	0.52 U	2.1 U	2.1 U	0.52 U	10 U	2.1 U	2.1 U	0.52 U	0.52 U	2.1 U	0.42 UJ	0.52 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	0.52 U
A3B8-SO-8	4/7/2015	8	39 U	39 U	160 U	160 U	39 U	780 U	160 U	100 J	39 U	39 U	83 J	66 J	39 U	160 U	670 J	400 J	160 U	160 J	260 J	160 U	39 U
A3B8-SO-24	4/7/2015	24	0.48 U	0.48 U	1.9 U	1.9 U	0.48 U	9.5 U	1.9 U	1.9 U	0.48 U	0.48 U	1.9 U	0.38 UJ	0.48 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	0.48 U
A3B9-SO-12	4/7/2015	12	0.38 U	0.38 U	1.5 U	1.5 U	0.38 U	7.6 U	1.5 U	1.5 U	0.38 U	0.38 U	1.5 U	0.30 UJ	0.38 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	0.38 U
A3B9-SO-18	4/7/2015	18	0.51 U	0.51 U	2 U	2 U	0.51 U	10 U	2 U	2 U	0.51 U	0.51 U	2 U	0.40 UJ	0.51 U	2 U	2 U	2 U	2 U	2 U	2 U	2 U	0.51 U
A3B10-SO-7	4/7/2015	7	0.41 U	0.41 U	1.6 U	1.6 U	0.41 U	8.2 U	1.6 U	1.6 U	0.41 U	0.41 U	1.6 U	0.33 UJ	0.41 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	0.41 U
A3B10-SO-18	4/7/2015	18	0.52 U	0.52 U	2.1 U	2.1 U	0.52 U	10 U	2.1 U	2.1 U	0.52 U	0.52 U	2.1 U	0.42 UJ	0.52 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	2.1 U	0.52 U
A3B11-SO-10	4/7/2015	10	0.39 U	0.39 U	1.6 U	1.6 U	0.39 U	7.8 U	1.6 U	1.6 U	0.39 U	0.39 U	1.6 U	0.31 UJ	0.39 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	0.39 U
A3B11-SO-18	4/7/2015	18	0.45 U	0.45 U	1.8 U	1.8 U	0.45 U	8.9 U	1.8 U	1.8 U	0.45 U	0.45 U	1.8 U	0.36 UJ	0.45 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	0.45 U
A3B12-SO-12	4/8/2015	12	39 U	39 U	160 U	160 U	39 U	780 U	160 U	160 U	39 U	39 U	160 U	31 J	39 U	160 U	160 U	49 J	160 U	160 U	160 U	160 U	39 U
A3B12-SO-25	4/8/2015	25	0.43 U	0.43 U	1.7 U	1.7 U	0.43 U	8.5 U	1.7 U	1.7 U	0.43 U	0.43 U	1.7 U	0.34 UJ	0.43 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	0.43 U
A3B13-SO-11	4/8/2015	11	0.4 U	0.4 U	1.6 U	1.6 U	0.4 U	7.9 U	1.6 U	1.6 U	0.4 U	0.4 U	1.6 U	0.32 UJ	0.4 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	0.4 U
A3B13-SO-20	4/8/2015	20	0.46 U	0.46 U	1.9 U	1.9 U	0.46 U	9.3 U	1.9 U	1.9 U	0.46 U	0.46 U	1.9 U	0.37 UJ	0.46 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	1.9 U	0.46 U
A3B14-SO-14	4/8/2015	14	39 U	39 U	150 U	150 U	39 U	770 U	150 U	31 J	39 U	39 U	74 J	31 J	39 U	150 U	310 J	140 J	150 U	200 J	120 J	150 U	39 U
A3B14-SO-25	4/8/2015	25	0.42 U	0.42 U	1.7 U	1.7 U	0.42 U	8.3 U	1.7 U	1.7 U	0.42 U	0.42 U	1.7 U	0.33 UJ	0.42 U	1.7 U	0.86 J	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	0.42 U
A3B15-SO-6	4/8/2015	6	100 U	100 U	420 U	420 U	100 U	2100 U	420 U	430 J	100 U	100 U	420 J	140 J	100 U	420 U	800 J	810 J	420 U	1300 J	1300 J	420 U	100 U
A3B15-SO-25	4/8/2015	25	0.53 U	0.53 U	2.1 U	2.1 U	0.53 U	11 U	2.1 U	2.1 U	0.53 U	0.53 U	2.1 U	0.42 UJ	0.53 U	2.1 U	3.2 J	0.48 J	2.1 U	2.1 U	2.1 U	2.1 U	0.53 U
A3B16-SO-18	4/8/2015	18	50 U	50 U	200 U	200 U	50 U	990 U	200 U	200 U	50 U	50 U	200 U	41 J	50 U	200 U	170 J	86 J	200 U	200 U	200 U	200 U	50 U
A3B16-SO-25	4/8/2015	25	0.51 U	0.51 U	2 U	2 U	0.51 U	10 U	2 U	2 U	0.51 U	0.51 U	2 U	0.41 UJ	0.51 U	2 U	2 U	0.52 J	2 U	2 U	2 U	2 U	0.51 U
A3B17-SO-20	4/10/2015	20	0.49 UJ	0.49 UJ	2 UJ	2 UJ	0.49 UJ	9.8 UJ	2 UJ	2 UJ	0.49 UJ	0.49 UJ	2 UJ	0.39 UJ	0.49 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	0.49 UJ
A3B17-SO-25	4/10/2015	25	0.53 UJ	0.53 UJ	2.1 UJ	2.1 UJ	0.53 UJ	11 UJ	2.1 UJ	2.1 UJ	0.53 UJ	0.53 UJ	2.1 UJ	0.42 UJ	0.53 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	0.53 UJ
A3B18-SO-16	4/10/2015	16	0.64 UJ	0.64 UJ	2.6 UJ	2.6 UJ	0.64 UJ	13 UJ	2.6 UJ	2.6 UJ	0.64 UJ	0.64 UJ	2.6 UJ	0.51 UJ	0.64 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	2.6 UJ	0.64 UJ
A3B18-SO-25	4/10/2015	25	0.48 UJ	0.48 UJ	1.9 UJ	1.9 UJ	0.48 UJ	9.6 UJ	1.9 UJ	1.9 UJ	0.48 UJ	0.48 UJ	1.9 UJ	0.38 UJ	0.48 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	0.48 UJ
A3B19-SO-7	4/10/2015	7	0.39 UJ	0.39 UJ	1.5 UJ	1.5 UJ	0.39 UJ	220 J	1.5 UJ	1.5 UJ	0.39 UJ	0.39 UJ	1.5 UJ	0.31 UJ	0.39 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	1.5 UJ	0.39 UJ
A3B19-SO-20	4/10/2015	20	0.44 UJ	0.44 UJ	1.8 UJ	1.8 UJ	0.44 UJ	8.8 UJ	1.8 UJ	1.8 UJ	0.44 UJ	0.44 UJ	1.8 UJ	0.35 UJ	0.44 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	1.8 UJ	0.44 UJ
A3B20-SO-20	4/10/2015	20	0.52 UJ	0.52 UJ	2.1 UJ	2.1 UJ	0.52 UJ	10 UJ	2.1 UJ	2.1 UJ	0.52 UJ	0.52 UJ	2.1 UJ	0.42 UJ	0.52 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	2.1 UJ	0.52 UJ
A3B20-SO-25	4/10/2015	25	0.47 UJ	0.47 UJ	1.9 UJ	1.9 UJ	0.47 UJ	9.4 UJ	1.9 UJ	1.9 UJ	0.47 UJ	0.47 UJ	1.9 UJ	0.38 UJ	0.47 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	1.9 UJ	0.47 UJ

Notes:
BOLD = detection
Results have been validated
mg/kg = milligrams per kilogram
NA = not available
1. Screening level values from Soil Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

Data Qualifier (where appropriate):
J = estimated concentration
U = not detected at or above the laboratory detection limit listed

Result exceeds Soil Method A Screening Level

Table 3
Soil Sample Analysis Summary Table - Volatile Organic Compounds

			TERT-BUTANOL	TERT-BUTYLBENZENE	TETRACHLOROETHENE	TOLUENE	TRANS-1,2-DICHLOROETHENE	TRANS-1,3-DICHLOROPROPENE	TRICHLOROETHENE	TRICHLOROFLUOROMETHANE	VINYL ACETATE	VINYL CHLORIDE
Method A Screening Level¹			NA	NA	50	7000	NA	NA	30	NA	NA	NA
Sample ID	Sample Date	Depth (ft)	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
A3B1-SO-10	4/6/2015	10	810 U	160 U	41 U	160 U	160 U	160 U	41 U	41 U	41 U	160 U
A3B1-SO-25	4/6/2015	25	9.7 U	1.9 U	0.48 U	1.9 U	1.9 U	1.9 U	0.48 U	0.48 U	0.48 U	1.9 U
A3B2-SO-13	4/6/2015	13	7.6 U	1.0 J	0.38 U	1.5 U	1.5 U	1.5 U	0.38 U	0.38 U	0.38 U	1.5 U
A3B2-SO-25	4/6/2015	25	11 U	2.2	0.55 U	2.2 U	2.2 U	2.2 U	0.55 U	0.55 U	0.55 U	2.2 U
A3B3-SO-11	4/6/2015	11	1400 U	31 J	72 U	290 U	290 U	290 U	72 U	72 U	72 U	290 U
A3B3-SO-20	4/6/2015	20	11 U	2.1 U	0.53 U	2.1 U	2.1 U	2.1 U	0.53 U	0.53 U	0.53 U	2.1 U
A3B4-SO-13	4/6/2015	13	1500 U	55 J	77 U	310 U	310 U	310 U	77 U	77 U	77 U	310 U
A3B4-SO-20	4/6/2015	20	10 U	2 U	0.51 U	2 U	2 U	2 U	0.51 U	0.51 U	0.51 U	2 U
A3B5-SO-13	4/6/2015	13	3300 U	93 J	160 U	650 U	650 U	650 U	160 U	160 U	160 U	650 U
A3B5-SO-23	4/6/2015	23	10 U	2.1 U	0.52 U	2.1 U	2.1 U	2.1 U	0.52 U	0.52 U	0.52 U	2.1 U
A3B6-SO-10	4/7/2015	10	1700 U	50 J	84 U	340 U	340 U	340 U	84 U	84 U	84 U	340 U
A3B6-SO-25	4/7/2015	25	11 U	2.1 U	0.53 U	2.1 U	2.1 U	2.1 U	0.53 U	0.53 U	0.53 U	2.1 U
A3B7-SO-8	4/7/2015	8	810 U	160 U	41 U	160 U	160 U	160 U	41 U	41 U	41 U	160 U
A3B7-SO-20	4/7/2015	20	10 UJ	2.1 U	0.52 U	2.1 U	2.1 U	2.1 U	0.52 U	0.52 U	0.52 U	2.1 U
A3B8-SO-8	4/7/2015	8	780 U	160 U	39 U	160 U	160 U	160 U	39 U	39 U	39 U	160 U
A3B8-SO-24	4/7/2015	24	9.5 U	1.9 U	0.48 U	1.9 U	1.9 U	1.9 U	0.48 U	0.48 U	0.48 U	1.9 U
A3B9-SO-12	4/7/2015	12	7.6 UJ	1.5 U	0.38 U	1.5 U	1.5 U	1.5 U	0.38 U	0.38 U	0.38 U	1.5 U
A3B9-SO-18	4/7/2015	18	10 U	2 U	0.51 U	2 U	2 U	2 U	0.51 U	0.51 U	0.51 U	2 U
A3B10-SO-7	4/7/2015	7	8.2 U	1.6 U	0.41 U	1.6 U	1.6 U	1.6 U	0.41 U	0.41 U	0.41 U	1.6 U
A3B10-SO-18	4/7/2015	18	10 U	2.1 U	0.52 U	2.1 U	2.1 U	2.1 U	0.52 U	0.52 U	0.52 U	2.1 U
A3B11-SO-10	4/7/2015	10	7.8 U	1.6 U	0.39 U	1.6 U	1.6 U	1.6 U	0.39 U	0.39 U	0.39 U	1.6 U
A3B11-SO-18	4/7/2015	18	8.9 U	1.8 U	0.45 U	1.8 U	1.8 U	1.8 U	0.45 U	0.45 U	0.45 U	1.8 U
A3B12-SO-12	4/8/2015	12	780 U	160 U	39 U	160 U	160 U	160 U	39 U	39 U	39 U	160 U
A3B12-SO-25	4/8/2015	25	8.5 U	1.7 U	0.43 U	1.7 U	1.7 U	1.7 U	0.43 U	0.43 U	0.43 U	1.7 U
A3B13-SO-11	4/8/2015	11	7.9 U	1.6 U	0.4 U	1.6 U	1.6 U	1.6 U	0.4 U	0.4 U	0.4 U	1.6 U
A3B13-SO-20	4/8/2015	20	9.3 U	1.9 U	0.46 U	1.9 U	1.9 U	1.9 U	0.46 U	0.46 U	0.46 U	1.9 U
A3B14-SO-14	4/8/2015	14	770 U	150 U	39 U	150 U	150 U	150 U	39 U	39 U	39 U	150 U
A3B14-SO-25	4/8/2015	25	8.3 UJ	1.7 U	0.42 U	1.7 U	1.7 U	1.7 U	0.42 U	0.42 U	0.42 U	1.7 U
A3B15-SO-6	4/8/2015	6	2100 UJ	420 U	100 U	420 U	420 U	420 U	100 U	100 U	100 U	420 U
A3B15-SO-25	4/8/2015	25	11 U	2.1 U	0.53 U	2.1 U	2.1 U	2.1 U	0.53 U	0.53 U	0.53 U	2.1 U
A3B16-SO-18	4/8/2015	18	990 U	200 U	50 U	200 U	200 U	200 U	50 U	50 U	50 U	200 U
A3B16-SO-25	4/8/2015	25	10 U	2 U	0.51 U	2 U	2 U	2 U	0.51 U	0.51 U	0.51 U	2 U
A3B17-SO-20	4/10/2015	20	9.8 UJ	2 UJ	0.49 UJ	2 UJ	2 UJ	2 UJ	0.49 UJ	0.49 UJ	0.49 UJ	2 UJ
A3B17-SO-25	4/10/2015	25	11 UJ	2.1 UJ	0.53 UJ	2.1 UJ	2.1 UJ	2.1 UJ	0.53 UJ	0.53 UJ	0.53 UJ	2.1 UJ
A3B18-SO-16	4/10/2015	16	13 UJ	2.6 UJ	0.64 UJ	2.6 UJ	2.6 UJ	2.6 UJ	0.64 UJ	0.64 UJ	0.64 UJ	2.6 UJ
A3B18-SO-25	4/10/2015	25	9.6 UJ	1.9 UJ	0.48 UJ	1.9 UJ	1.9 UJ	1.9 UJ	0.48 UJ	0.48 UJ	0.48 UJ	1.9 UJ
A3B19-SO-7	4/10/2015	7	7.7 UJ	1.5 UJ	0.39 UJ	1.5 UJ	1.5 UJ	1.5 UJ	0.39 UJ	0.39 UJ	0.39 UJ	1.5 UJ
A3B19-SO-20	4/10/2015	20	8.8 UJ	1.8 UJ	0.44 UJ	1.8 UJ	1.8 UJ	1.8 UJ	0.44 UJ	0.44 UJ	0.44 UJ	1.8 UJ
A3B20-SO-20	4/10/2015	20	10 UJ	2.1 UJ	0.52 UJ	2.1 UJ	2.1 UJ	2.1 UJ	0.52 UJ	0.52 UJ	0.52 UJ	2.1 UJ
A3B20-SO-25	4/10/2015	25	9.4 UJ	1.9 UJ	0.47 UJ	0.85 J	1.9 UJ	1.9 UJ	0.47 UJ	0.47 UJ	0.47 UJ	1.9 UJ

Notes:

BOLD = detection

Results have been validated

mg/kg = milligrams per kilogram

NA = not available

1. Screening level values from Soil Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

Result exceeds Soil Method A Screening Level

Data Qualifier (where appropriate):

J = estimated concentration

U = not detected at or above the laboratory detection limit listed

Table 4
Soil Sample Analysis Summary Table - Total Petroleum Hydrocarbons

			TPH-DIESEL RANGE	TPH-TOTAL UNKNOWN GASOLINE RANGE ORGANICS
Method A Screening Level ¹			2,000	100
Sample ID	Sample Date	Depth (ft)	mg/kg	mg/kg
A3B1-SO-10	4/6/2015	10	16.0	270
A3B1-SO-25	4/6/2015	25	2.00 U	0.0490 U
A3B2-SO-13	4/6/2015	13	810	30.0 *
A3B2-SO-25	4/6/2015	25	2.00 U	0.0520 U
A3B3-SO-11	4/6/2015	11	630	580
A3B3-SO-20	4/6/2015	20	2.00 U	0.0530 U
A3B4-SO-13	4/6/2015	13	4,000	1,400
A3B4-SO-20	4/6/2015	20	2.00 U	0.0520 U
A3B5-SO-13	4/6/2015	13	580	3,300
A3B5-SO-23	4/6/2015	23	2.00 U	0.0480 U
A3B6-SO-10	4/7/2015	10	26,000	1,500
A3B6-SO-25	4/7/2015	25	2.00 U	0.0480 U
A3B7-SO-8	4/7/2015	8	540 J	71.0
A3B7-SO-20	4/7/2015	20	2.00 U	0.0530 U
A3B8-SO-8	4/7/2015	8	2,100	350
A3B8-SO-24	4/7/2015	24	2.00 U	0.0480 U
A3B9-SO-12	4/7/2015	12	2.00 U	0.0430 J
A3B9-SO-18	4/7/2015	18	2.00 U	0.0500 U
A3B10-SO-7	4/7/2015	7	2.00 U	0.0450 U
A3B10-SO-18	4/7/2015	18	2.00 U	0.0500 U
A3B11-SO-10	4/7/2015	10	2.00 U	0.0450 U
A3B11-SO-18	4/7/2015	18	2.00 U	0.0470 U
A3B12-SO-12	4/8/2015	12	230	120
A3B12-SO-25	4/8/2015	25	8.40	0.0440 J
A3B13-SO-11	4/8/2015	11	2.00 U	0.0390 U
A3B13-SO-20	4/8/2015	20	2.00 U	0.0450 U
A3B14-SO-14	4/8/2015	14	1,300	260
A3B14-SO-25	4/8/2015	25	3.10 J	0.0970
A3B15-SO-6	4/8/2015	6	2,900	690 J
A3B15-SO-25	4/8/2015	25	68.0	2.20
A3B16-SO-18	4/8/2015	18	65.0	91.0
A3B16-SO-25	4/8/2015	25	580	54.0
A3B17-SO-20	4/10/2015	20	16.0	0.790 J
A3B17-SO-25	4/10/2015	25	5.20 J	0.110 J
A3B18-SO-16	4/10/2015	16	2.00 U	0.0290 J
A3B18-SO-25	4/10/2015	25	2.00 U	0.0480 UJ
A3B19-SO-7	4/10/2015	7	2.00 U	0.0390 UJ
A3B19-SO-20	4/10/2015	20	2.00 U	0.0540 UJ
A3B20-SO-20	4/10/2015	20	5.10	0.710 J
A3B20-SO-25	4/10/2015	25	1.60 J	0.320 J

Notes:

BOLD = detection

Results have been validated

mg/kg = milligrams per kilogram

NA = not available

1. Screening level values from Soil Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

Result exceeds Soil Method A Screening Level

* - screening level for gasoline = 30 mg/kg if benzene is present

Data Qualifier (where appropriate):

J = estimated concentration

U = not detected at or above the laboratory detection limit listed

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Table 5
Soil Sample Analysis Summary Table - Total Lead

			LEAD
Method A Screening Level ¹			250
Sample ID	Sample Date	Depth (ft)	mg/kg
A3B1-SO-10	4/6/2015	10	4.23
A3B1-SO-25	4/6/2015	25	2.66
A3B2-SO-13	4/6/2015	13	3.52
A3B2-SO-25	4/6/2015	25	2.51
A3B3-SO-11	4/6/2015	11	4.09
A3B3-SO-20	4/6/2015	20	2.92
A3B4-SO-13	4/6/2015	13	2.78
A3B4-SO-20	4/6/2015	20	2.84
A3B5-SO-13	4/6/2015	13	3.97
A3B5-SO-23	4/6/2015	23	2.70
A3B6-SO-10	4/7/2015	10	1.94
A3B6-SO-25	4/7/2015	25	2.61
A3B7-SO-8	4/7/2015	8	4.96
A3B7-SO-20	4/7/2015	20	3.21
A3B8-SO-8	4/7/2015	8	2.81
A3B8-SO-24	4/7/2015	24	3.08
A3B9-SO-12	4/7/2015	12	3.76
A3B9-SO-18	4/7/2015	18	2.92
A3B10-SO-7	4/7/2015	7	3.13
A3B10-SO-18	4/7/2015	18	2.78
A3B11-SO-10	4/7/2015	10	1.80
A3B11-SO-18	4/7/2015	18	2.54
A3B12-SO-12	4/8/2015	12	3.97
A3B12-SO-25	4/8/2015	25	2.88
A3B13-SO-11	4/8/2015	11	1.97
A3B13-SO-20	4/8/2015	20	2.77
A3B14-SO-14	4/8/2015	14	2.06
A3B14-SO-25	4/8/2015	25	2.70
A3B15-SO-6	4/8/2015	6	3.30
A3B15-SO-25	4/8/2015	25	2.56
A3B16-SO-18	4/8/2015	18	2.89
A3B16-SO-25	4/8/2015	25	2.99
A3B17-SO-20	4/10/2015	20	2.99
A3B17-SO-25	4/10/2015	25	2.47
A3B18-SO-16	4/10/2015	16	2.50
A3B18-SO-25	4/10/2015	25	2.99
A3B19-SO-7	4/10/2015	7	6.58
A3B19-SO-20	4/10/2015	20	2.83
A3B20-SO-20	4/10/2015	20	2.72
A3B20-SO-25	4/10/2015	25	2.62

Notes:

BOLD = detection

Results have been validated

mg/kg = milligrams per kilogram

NA = not available

1. Screening level values from Soil Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

 Result exceeds Soil Method A Screening Level

Data Qualifier (where appropriate):

J = estimated concentration

U = not detected at or above the laboratory detection limit listed

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Table 6
Groundwater Sample Analysis Summary Table - Volatile Organic Compounds

		1,1,1,2-TETRACHLOROETHANE	1,1,1-TRICHLOROETHANE	1,1,2,2-TETRACHLOROETHANE	1,1,2-TRICHLORO- 1,2,2-TRIFLUOROETHANE	1,1,2-TRICHLOROETHANE	1,1-DICHLOROETHANE	1,1-DICHLOROETHENE	1,1-DICHLOROPROPENE	1,2,3-TRICHLOROBENZENE	1,2,3-TRICHLOROPROPANE	1,2,4-TRICHLOROBENZENE	1,2,4-TRIMETHYLBENZENE	1,2-DIBROMO-3-CHLOROPROPANE	1,2-DIBROMOETHANE	1,2-DICHLOROBENZENE	1,2-DICHLOROETHANE	1,2-DICHLOROPROPANE	1,3,5-TRIMETHYLBENZENE	1,3-DICHLOROBENZENE	1,3-DICHLOROPROPANE
Method A Screening Level ¹		NA	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0100	NA	5.00	NA	NA	NA	NA
Sample ID	Sample Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
A3MW1-GW	4/10/2015	0.500 U	0.500 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
A3MW2-GW	4/10/2015	0.500 U	0.500 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
A3MW3-GW	4/10/2015	0.500 UJ	0.500 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 UJ	1.00 U	0.490 J	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
A3MW4-GW	4/10/2015	0.500 U	0.500 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U
A3MW5-GW*	4/10/2015	0.500 U	0.500 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 U	1.00 U	1.00 U	0.480 J	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U

Notes:
BOLD = detection
Results have been validated
ug/L = micrograms per liter
NA = not available
* Sample A3MW5-GW is a duplicate to parent sample A3MW3-GW.
1. Screening level values from Groundwater Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

Data Qualifier (where appropriate):
J = estimated concentration
U = not detected at or above the laboratory detection limit listed

Result exceeds Groundwater Method A Screening Level

Table 6
Groundwater Sample Analysis Summary Table - Volatile Organic Compounds

		1,4-DICHLORO-2-BUTENE	1,4-DICHLOROBENZENE	2,2-DICHLOROPROPANE	2-BUTANONE	2-CHLOROTOLUENE	2-HEXANONE	4-CHLOROTOLUENE	4-ISOPROPYLTOLUENE	4-METHYL-2-PENTANONE	ACETONE	ACRYLONITRILE	BENZENE	BROMOBENZENE	BROMOCHLOROMETHANE	BROMODICHLOROMETHANE	BROMOFORM	BROMOMETHANE	CARBON DISULFIDE	CARBON TETRACHLORIDE	CHLOROBENZENE	CHLOROETHANE
Method A Screening Level ¹		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sample ID	Sample Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
A3MW1-GW	4/10/2015	5.00 UJ	0.500 U	0.500 UJ	5.00 U	0.500 U	5.00 U	0.500 U	0.500 U	5.00 U	10.0 UJ	10.0 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 UJ	5.00 UJ	0.500 U	0.500 UJ	0.500 U	5.00 UJ
A3MW2-GW	4/10/2015	5.00 UJ	0.500 U	0.500 UJ	5.00 U	0.500 U	5.00 U	0.500 U	0.500 U	5.00 U	6.50 J	10.0 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 UJ	5.00 UJ	0.500 U	0.500 UJ	0.500 U	5.00 UJ
A3MW3-GW	4/10/2015	5.00 UJ	0.500 U	0.500 UJ	5.00 U	0.500 U	5.00 U	0.500 U	0.500 U	5.00 U	10.0 UJ	10.0 U	8.80	0.500 U	0.500 U	0.500 U	1.00 UJ	5.00 UJ	0.500 U	0.500 UJ	0.500 U	5.00 UJ
A3MW4-GW	4/10/2015	5.00 UJ	0.500 U	0.500 UJ	5.00 U	0.500 U	5.00 U	0.500 U	0.500 U	5.00 U	10.0 UJ	10.0 U	0.500 U	0.500 U	0.500 U	0.500 U	1.00 UJ	5.00 UJ	0.500 U	0.500 UJ	0.500 U	5.00 UJ
A3MW5-GW*	4/10/2015	5.00 UJ	0.500 U	0.500 UJ	5.00 U	0.500 U	5.00 U	0.500 U	0.500 U	5.00 U	10.0 UJ	10.0 U	8.90	0.500 U	0.500 U	0.500 U	1.00 UJ	5.00 UJ	0.500 U	0.500 UJ	0.500 U	5.00 UJ

Notes:
BOLD = detection
Results have been validated
ug/L = micrograms per liter
NA = not available
* Sample A3MW5-GW is a duplicate to parent sample A3MW3-GW.
1. Screening level values from Groundwater Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

Data Qualifier (where appropriate):
J = estimated concentration
U = not detected at or above the laboratory detection limit listed

Result exceeds Groundwater Method A Screening Level

Table 6
Groundwater Sample Analysis Summary Table - Volatile Organic Compounds

		CHLOROFORM	CHLOROMETHANE	CIS-1,2-DICHLOROETHENE	CIS-1,3-DICHLOROPROPENE	DIBROMOCHLOROMETHANE	DIBROMOMETHANE	DICHLORODIFLUOROMETHANE	ETHANOL	ETHYL TERT-BUTYL ETHER	ETHYLBENZENE	HEXACHLOROBUTADIENE	IODOMETHANE	ISOPROPYL ETHER	ISOPROPYLBENZENE	M- AND P-XYLENE	METHYL TERT-BUTYL ETHER	METHYLENE CHLORIDE	NAPHTHALENE	N-BUTYLBENZENE	O-XYLENE	PROPYLBENZENE
Method A Screening Level ¹		NA	NA	NA	NA	NA	NA	NA	NA	NA	700	NA	NA	NA	NA	1,000	20.0	5.00	160	NA	NA	NA
Sample ID	Sample Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
A3MW1-GW	4/10/2015	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	50.0 U	0.500 U	0.500 U	0.500 U	10.0 UJ	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	5.00 U	0.500 U	0.500 U	0.500 U
A3MW2-GW	4/10/2015	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	50.0 U	0.500 U	2.80	0.500 U	10.0 UJ	0.500 U	1.40 J	1.00 U	0.500 U	1.00 U	15.0	0.690 J	0.500 U	2.00
A3MW3-GW	4/10/2015	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	50.0 U	0.500 U	32.0	0.500 U	10.0 UJ	0.500 U	9.00	0.620 J	0.500 U	1.00 U	83.0	3.70	0.500 U	15.0
A3MW4-GW	4/10/2015	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	50.0 U	0.500 U	0.500 U	0.500 U	10.0 UJ	0.500 U	1.00 U	1.00 U	0.500 U	1.00 U	5.00 U	0.500 U	0.500 U	0.500 U
A3MW5-GW*	4/10/2015	0.500 U	2.00 UJ	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	50.0 U	0.500 U	32.0	0.500 U	10.0 UJ	0.500 U	9.30	0.570 J	0.500 U	1.00 U	85.0	3.70	0.500 U	15.0

Notes:
BOLD = detection
Results have been validated
ug/L = micrograms per liter
NA = not available
* Sample A3MW5-GW is a duplicate to parent sample A3MW3-GW.
1. Screening level values from Groundwater Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.


Data Qualifier (where appropriate):
J = estimated concentration
U = not detected at or above the laboratory detection limit listed

Result exceeds Groundwater Method A Screening Level

Table 6
Groundwater Sample Analysis Summary Table - Volatile Organic Compounds

		SEC-BUTYLBENZENE	STYRENE	T-AMYL METHYL ETHER	TERT-BUTANOL	TERT-BUTYLBENZENE	TETRACHLOROETHENE	TOLUENE	TRANS-1,2-DICHLOROETHENE	TRANS-1,3-DICHLOROPROPENE	TRICHLOROETHENE	TRICHLOROFLUOROMETHANE	VINYL ACETATE	VINYL CHLORIDE
Method A Screening Level ¹		NA	NA	NA	NA	NA	5.00	1,000	NA	NA	5.00	NA	NA	0.200
Sample ID	Sample Date	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
A3MW1-GW	4/10/2015	0.500 U	0.500 U	0.500 U	5.00 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	2.00 U	5.00 U	0.500 U
A3MW2-GW	4/10/2015	0.920 J	0.500 U	0.500 U	7.60 J	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	2.00 U	5.00 U	0.500 U
A3MW3-GW	4/10/2015	5.90	0.500 U	0.500 U	16.0 J	0.300 J	0.500 U	0.410 J	0.500 U	0.500 U	0.500 U	2.00 U	5.00 U	0.500 U
A3MW4-GW	4/10/2015	0.500 U	0.500 U	0.500 U	17.0 J	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	0.500 U	2.00 U	5.00 U	0.500 U
A3MW5-GW*	4/10/2015	6.00	0.500 U	0.500 U	5.00 J	0.500 UJ	0.500 U	0.400 J	0.500 U	0.500 U	0.500 U	2.00 U	5.00 U	0.500 U

Notes:
BOLD = detection
Results have been validated
ug/L = micrograms per liter
NA = not available
* Sample A3MW5-GW is a duplicate to parent sample A3MW3-GW.
1. Screening level values from Groundwater Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

 Result exceeds Groundwater Method A Screening Level

Data Qualifier (where appropriate):
J = estimated concentration
U = not detected at or above the laboratory detection limit listed

Table 7
Groundwater Sample Analysis Summary Table - Total Petroleum Hydrocarbons

		TPH-DIESEL RANGE	TPH-TOTAL UNKNOWN GASOLINE RANGE ORGANICS
Method A Screening Level¹		500	1,000
Sample ID	Sample Date	ug/L	ug/L
A3MW1-GW	4/10/2015	700	150 J
A3MW2-GW	4/10/2015	1,700	440
A3MW3-GW	4/10/2015	19,000	12,000 J
A3MW4-GW	4/10/2015	610	230
A3MW5-GW*	4/10/2015	17,000	4,600 J

Notes:

BOLD = detection

Results have been validated

ug/L = micrograms per liter

NA = not available

* Sample A3MW5-GW is a duplicate to parent sample A3MW3-GW.

1. Screening level values from Groundwater Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

 Result exceeds Groundwater Method A Screening Level

Data Qualifier (where appropriate):

J = estimated concentration

U = not detected at or above the
laboratory detection limit listed

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Table 8
Groundwater Sample Analysis Summary Table - Total Lead

		LEAD
Method A Screening Level ¹		15.0
Sample ID	Sample Date	ug/L
A3MW1-GW	4/10/2015	5.00 U
A3MW2-GW	4/10/2015	5.00 U
A3MW3-GW	4/10/2015	12.6
A3MW4-GW	4/10/2015	5.00 U
A3MW5-GW	4/10/2015	16.4

Notes:

BOLD = detection

Results have been validated

ug/L = micrograms per liter

NA = not available

* Sample A3MW5-GW is a duplicate to parent sample A3MW3-GW.

1. Screening level values from Groundwater Method A, Washington State Department of Ecology (WA DOE), Model Toxics Control Act (MTCA), Cleanup Levels and Risk Calculation (CLARC), May 2014.

 Result exceeds Groundwater Method A Screening Level

Data Qualifier (where appropriate):

J = estimated concentration

U = not detected at or above the
laboratory detection limit listed

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Appendix A

SITE PHOTOGRAPHS

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Photo B-1. Hand Augering prior to Boring and Well Drilling.



Photo B-2. Soil Boring Drilling.



Photo B-3. Soil Boring Logging.

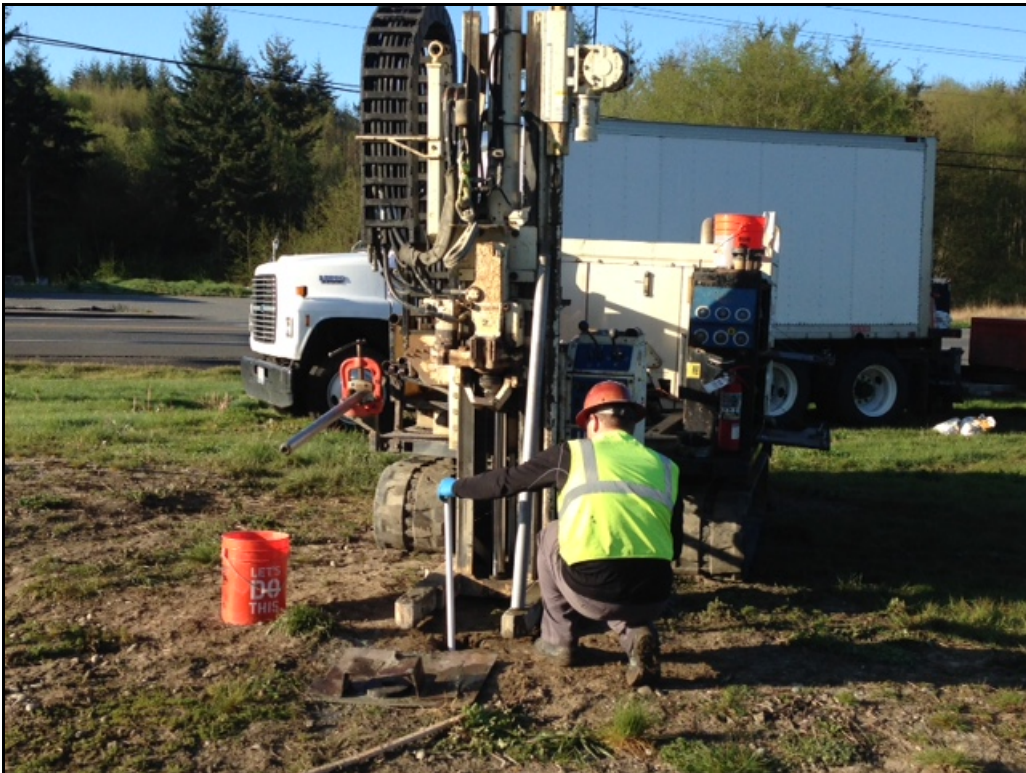


Photo B-4. Temporary Monitoring Well Installation.



Photo B-5. Temporary Monitoring Well Purging.



Photo B-6. Site Surveying.


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Appendix B BORING LOGS

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BORING LOG: A3B1		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/06/2015	COMPLETION DATE: 04/06/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.69			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489051.70					
EASTING: 1193692.35					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	Fill						
5							
8'-13.5' bgs, CL, clay with sand and few gravel, 2.5Y 4/1, dark gray, moist, stiff. 60% fines, 10% fine sand, 15% medium sand, 5% coarse sand, 10% fine gravel.		42					Petroleum odor.
		4					A3B1-SO-10 sampled at 10' bgs
		40					Groundwater at 11' bgs
		40					Petroleum odor.
13.5' to 18.5' bgs , SW, well-graded sand with few gravel, 2.5Y 4/2, dark grayish brown, moist, soft. 90% fine sand, 5% medium sand, 5% fine gravel.		0.5					
		1					
18.5'-20' bgs, SM, silty sand with trace gravel, 2.5Y 4/1, dark gray, moist soft. 30% fines, 30% fine sand, 30% medium sand, 10% fine gravel.		4					Slight petroleum odor.
20' to 25' bgs , SW, well-graded fine to coarse sand with trace gravel, 2.5Y 4/2, dark grayish brown, moist, soft. 30% fine sand, 35% medium sand, 30% coarse sand, 5% fine gravel.		0.1					
		0					
		0					A3B1-SO-25 sampled at 25' bgs

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		A3B1	


BORING LOG: A3B2		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/06/2015	COMPLETION DATE: 04/06/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.72			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489051.58					
EASTING: 1193686.61					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	Fill material, no sampling prior to 8' bgs						
8'	8' to 10' bgs, CL CLAY WITH SAND AND FEW GRAVEL, 5Y 4/1, dark gray, moist, stiff. 80% fines, 10% fine sand, 10% fine gravel.		1.5 49 40				8' bgs-groundwater
10'	10' to 13' bgs, SW, WELL GRADED SAND WITH FEW GRAVEL, 2.5 Y 4/2, dark grayish brown, moist, soft, 45% fine sand, 45% medium sand, 15% fine gravel.		1.5 6 15				Petroleum odor.
13'	13' to 15' bgs, SW, FINE TO COARSE SAND WITH FEW GRAVEL, 2.5Y 4/2, dark grayish brown, moist, soft. 5% fines, 30% fine sand, 30% medium sand, 20% coarse sand, 15% fine gravel.		58 21				13' sample collected A3B2-SO-13
15'	15' to 20' bgs, SW, FINE TO COARSE SAND WITH FEW GRAVEL, 2.5Y 4/3, light olive brown, moist, soft. 30% fine sand, 30% medium sand, 15% coarse, 15 % fine gravel.		4 0.2 0.1				
20'	20' to 22.5' bgs, SM FINE TO MEDIUM SAND WITH SILT AND LITTLE GRAVEL, 2.5Y 4/1, dark gray, moist, soft. 30% fines, 30% fine sand, 30% medium sand, 10% fine gravel.		0 4				Strong petroleum odor.
22.5'	22.5' to 25' bgs, SW FINE TO COARSE SAND WITH TRACE GRAVEL, 2.5YR 4/3, light olive brown, moist, soft, 30% fine sand, 30% medium sand, 15% coarse sand, 15% fine gravel.		2.5 0.5				Petroleum odor. 25' Sample Collected A3B2-SO-25

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		A3B2		


BORING LOG: A3B3		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/06/2015	COMPLETION DATE: 04/06/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.65			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489057.01					
EASTING: 1193692.45					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	Fill material, no sampling prior to 8' bgs						
5							Strong petroleum odor and visible staining
8'	8' to 10' bgs CL CLAY WITH SAND AND FEW GRAVEL, 5Y 4/1, dark gray, moist, stiff. 80% fines, 10% fine sand, 10% fine gravel		60				Very strong odor and staining
10'	10' to 14' bgs, SW, WELL GRADED SAND WITH FEW GRAVEL AND TRACE SILT, 2.5Y 4/2, dark gray, moist, stiff, 5% fines, 70% fine sand, 15% medium sand, 10% coarse gravel		16				10.5' groundwater
11'			20				11' Sample collected A3B3SO-11
14'	14 to 15' bgs , SW, FINE TO COARSE SAND WITH FEW GRAVEL, 2.5 Y 4/1, dark gray, moist, soft		66				
15'	15' to 20' bgs, SW, WELL GRADED SAND WITH FEW GRAVEL AND LITTLE SILT, 5Y 4/3, olive brown, moist, soft. 30% fines, 30% fine sand, 30% medium sand, 10% fine gravel		9				Petroleum odor
15'			5				Slight odor.
15'			6				
20'	20' to 22.5' bgs, SM FINE TO MEDIUM SILTY SAND WITH TRACE GRAVEL, 5Y 4/3, olive brown, moist, soft, 20% fines, 70% fine sand, 10% fine gravel		1				20' sample collected A3B3-SO-20
20'			1				
22.5'	22.5' to 25' bgs, SP POORLY GRADED SAND WITH TRACE GRAVEL, 5Y 4/3, olive brown, moist, soft, 80% fine sand, 10% medium sand, 10% coarse sand		0				
25'			0				

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		A3B3	


BORING LOG: A3B4		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST			PROJECT NUMBER: 502314JP01		
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA					
START DATE: 04/06/2015		COMPLETION DATE: 04/06/2015		LOGGED BY: Kelli Miller/Joseph Dumont		CHECKED BY: Kevin Olness	
DRILLING CONTRACTOR: Cascade Drilling				GROUND SURFACE ELEVATION (ft-MSL): 149.73			
DRILLING METHOD: Direct Push				TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT				BORING DIAMETER (in): 2 3/4			
NORTHING: 489050.68							
EASTING: 1193699.18							

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	FILL MATERIAL						No sampling prior to 5'
5	5' to 10' bgs CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/1, dark gray, moist, stiff. 55% fines, 15% fine sand, 15% medium sand, 5% coarse sand, 10% fine gravel.		13				Slight petroleum odor
			8				
			12				
10	10' to 15' bgs , SW-SC FINE SAND WITH CLAY AND FEW GRAVEL, 2.5 Y 4/1, dark gray, moist, soft.		4				10'- Groundwater encounterd
			45				
			11				13' Sample collected A3B4-SO-13 Slight petroleum odor
15	15' to 20' bgs, SW FINE SAND WITH FEW GRAVEL, 2.5Y 4/1, dark gray, moist, soft. 70% fine sand, 10% medium sand, 10% coarse sand, 10% fine gravel		0.2				
			0.2				
			0.2				20' sample collected A3B4-SO-20
20							
25							

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BORING LOG: A3B5		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/06/2015	COMPLETION DATE: 04/06/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.80			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489046.90					
EASTING: 1193692.80					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	FILL MATERIAL						No sampling prior to 5 bgs.
5	5' to 10' bgs CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/1, dark gray, moist, stiff. 60% fines, 20% fine sand, 15% medium sand, 5% coarse sand, 10% fine gravel.		0.7				
			17				
			36				Groundwater encountered at 9' bgs
							Petroleum odor
10	10' to 15' bgs , SW FINE SAND WITH LITTLE GRAVEL, 5Y 4/1, dark gray, moist, stiff, 5% fines, 65% fine sand, 5% medium sand, 5% coarse sand, 20% fine gravel.		6				Petroleum odor.
			65				13' Sample collected A3B5-SO-13
			5				
15	15' to 20' bgs, SW FINE SAND WITH FEW GRAVEL, 5Y 5/2, dark gray, moist, loose. 10% fine sand, 60% medium sand, 20% medium sand, 10% fine gravel.		0.5				Slight petroleum odor.
			0.4				Boring grades from gravel at top to finer grains at the bottom
			0.2				
20	20' to 25' bgs SM, SILTY (FINE TO MEDIUM) SAND WITH TRACE GRAVEL, 2.5Y 4/1, dark gray, moist, soft, 30% fines, 30% fine sand, 30% medium sand, 10% fine gravel.		0.7				
			0.3				
			0.2				23' sample collected A3B5-SO-23
25							

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BORING LOG: A3B6		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/07/2015	COMPLETION DATE: 04/07/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.60			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489051.86					
EASTING: 1193708.52					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	FILL MATERIAL						
5	5'-7' bgs, ML SILT WITH SOME SAND, 2.5Y 4/2, dark greyish brown, stiff, moist, 55% fines, 20% fine sand, 20% medium sand, 5% coarse sand		0				
	7-10, SW WELL GRADED SAND, 2.5 Y 4/2, dark grey soft, moist, 25% fine sand, 50% medium sand, 25% coarse sand		77				
	8'-10' bgs, ML SILT WITH SOME SAND AND LITTLE GRAVEL, 2.5Y 4/2, dark greyish brown, stiff, moist, 55% fines, 20% fine sand, 20% medium sand, 5% coarse sand		49				
10	10 to 12' bgs , SW WELL GRADED SAND WITH FEW GRAVEL, 2.5 Y 4/2, dark grayish brown, moist, soft, 5% fines, 80% fine sand, 15% medium sand		102				
	12' to 13' bgs SM SILTY SAND LENS, 2.5Y 4/1, dark gray, moist, soft, 30% fine sand, 30% medium sand, 15% coarse sand		32				
	13' to 15' bgs , SW, WELL GRADED SAND WITH FEW GRAVEL, 2.5 Y 4/2, dark grayish brown, moist, soft, 30% fines sand, 30% medium sand, 15% coarse sand, 15% fine gravel		14				
15	15' to 17.5' bgs, SW WELL GRADED SAND WITH TRACE GRAVEL, 2.5Y 5/3, light olive brown, moist, soft, 5% fines, 85% fine sand, 5% medium, 5% fine gravel		42				
	17'-19' bgs, SW WELL GRADED SAND WITH SILT, more fines 2.5YR 4/2, dark grayish brown, moist, medium, 5% fines, 95% fine sand		13				
	19'-20' bgs, same as 15'-17.5'		5				
20	20'-25' bgs, SW, SAND WITH FEW GRAVEL, 2.5Y 5/3, light olive brown, moist, soft, 80% fine sand, 10% medium sand, 3% coarse sand, 7% fine gravel		4.3				
			53				
25			20				Faint petroleum odor.

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BORING LOG: A3B7		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/07/2015	COMPLETION DATE: 04/07/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.83			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489045.83					
EASTING: 1193700.94					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	FILL						
5	5'-9' bgs, CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/1, dark gray, moist, stiff. 55% fines, 15% fine sand, 15% medium sand, 5% coarse sand, 10% fine gravel. 1" lens of fine to coarse sand, SW around 7' bgs.		3				Encountered concrete chunks around 4' bgs
10	9'-11.5' bgs, SW POORLY GRADED FINE SAND, 2.5Y 4/1, dark grey, stiff, moist, 5% fines, 90% fine sand, 5% medium sand		1.1				Petroleum odor.
15	11.5' to 14' bgs, CL SANDY CLAY WITH FEW GRAVEL, 2.5 Y 4/2, dark grey, moist, stiff, 60% fines, 15% fine sand, 5% medium sand, 5% coarse sand, 15% gravel		0.5				
20	14'-20' bgs, SW WELL-GRADED SAND WITH FEW GRAVEL, 2.5Y 4/2, dark grayish brown, moist, soft 30% fine sand, 30% medium sand, 15% coarse sand, 15% fine gravel		0.5				
25			1				
			0.5				
			0.3				

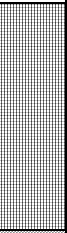
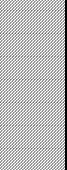

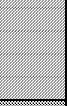



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BORING LOG: A3B8		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/07/2015	COMPLETION DATE: 04/07/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECK BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.40			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489058.21					
EASTING: 1193699.42					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs, FILL SW WELL GRADED SAND WITH GRAVEL, 10YR 3/2 very dark grayish brown, 40% fine sand, 20% medium sand, 10% coarse sand, 15% fine gravel, 15% coarse gravel						
5	5'-14' bgs, CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/1, dark gray, moist, stiff. 50% fines, 20% fine sand, 20% medium sand, 5% coarse sand, 5% fine gravel, 5% coarse gravel, 6" fine to coarse sand lens at 7' bgs.		72				Petroleum odor in 6" sand lens
			83				
			13				
10			111				
			46				
15	14'-17.5' bgs, SW WELL GRADED SAND WITH GRAVEL 2.5Y 4/2, dark grayish brown, moist, soft, 40% fine sand, 20% medium sand, 10% coarse sand, 15% fine gravel, 15% coarse gravel		52				
			5				
			2				
20	17.5'-20' bgs, SW SAND WITH FEW GRAVEL GRADES TO POORLY GRADED FINE SAND, 2.5Y 5/3 light olive brown, moist, soft, 85% fine sand, 5% medium sand, 5% coarse sand, 5% fine gravel to 100% fine sand		2				
			1.2				
	20'-25' bgs, SW POORLY GRADED FINE TO MEDIUM SAND, 2.5Y 4/2 dark grayish brown, moist, soft, 45% fine sand, 45% medium sand, 10% coarse sand		0.2				
25	fine, few gravel near 25'		0.3				

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BORING LOG: A3B9		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/07/2015	COMPLETION DATE: 04/07/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECK BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION 149.98			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4"			
NORTHING: 489039.40					
EASTING: 1193709.73					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	Hand augered to 5' bgs						Encountered concrete (2' bgs) and pieces of fill material in borehole
5	5'-9' bgs CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/2 dark grayish brown, moist, stiff, 60% fines, 20% fine sand, 5% medium sand, 5% coarse sand, 10% fine gravel		0				
	9'-10' bgs SW, WELL GRADED SAND WITH GRAVEL, moist medium		0				
10	10'-12.5' bgs CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/2 dark grayish brown, moist, stiff, 55% fines, 15% fine sand, 10% medium sand, 5% coarse sand, 15% fine gravel		0				Faint petroleum odor
	12.5'-14.5' bgs SP-SM POORLY GRADED SAND WITH SILT, 2.5Y 4/2 dark grayish brown 5Y 4/1 dark grey moist, 40% fines, 60% fine sand		0				
15	14.5'-15' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL		0				
	15'-20' bgs SP POORLY GRADED SAND, TRACE GRAVEL, 2.5Y 5/3 light olive brown, moist, soft, 85% fine sand, 5% medium sand, 5% coarse sand, 5% fine gravel		0				
20							
25							

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BORING LOG: A3B10		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/07/2015	COMPLETION DATE: 04/07/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 150.15			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489021.51					
EASTING: 1193692.19					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs SW FINE TO COARSE SAND LITTLE GRAVEL, 10YR 3/2 very dark grayish brown, moist, medium to soft 15% fine sand, 40% medium sand, 15% coarse sand, 15% fine gravel, 15% coarse gravel						Did not encounter concrete here
5	5'-7.5' bgs SW FINE TO COARSE SAND, LITTLE GRAVEL, 10YR 4/2 dark grayish brown, moist, soft 15% fine sand, 40% medium sand, 15% coarse sand, 15% fine gravel, 15% coarse gravel		0				Drillers noted borehole drier than previous boreholes today
	7.5'-10 bgs CL, clay with sand and few gravel, 2.5Y 5/2 grayish brown, moist, stiff, 60% fines, 20% fine sand, 5% medium sand, 5% coarse sand, 5% fine gravel, 5% coarse gravel		0				
10	10'-15' bgs CL CLAY WITH SAND AND FEW GRAVEL, with sand and gravel lenses 10'-11' bgs and 12' bgs. 2.5Y 5/2 grayish brown, moist, stiff, 60% fines, 20% fine sand, 5% medium sand, 5% coarse sand, 5% fine gravel, 5% coarse gravel		0				
			0				
15	15'-20' bgs SP POORLY GRADED SAND TRACE GRAVEL, 80% fine sand, 45% medium sand, 5% fine gravel		0				
			0				
			0				
20							
25							

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BORING LOG: A3B11		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/07/2015	COMPLETION DATE: 04/07/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.62			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489048.97					
EASTING: 1193730.77					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs, SW FINE TO COARSE SAND LITTLE GRAVEL, 10YR 3/2 dark grayish brown, moist, medium to soft, 15% fine sand, 40% medium sand, 15% coarse sand, 15% fine gravel, 15% coarse gravel						Hand augered, did not encounter concrete
5	5'-8' bgs, CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/2 dark grayish brown, moist, stiff		0				Groundwater around 5' bgs
	8'-9' bgs, SW FINE TO COARSE SAND LITTLE GRAVEL		0				
	9'-10' bgs SM, SILTY SAND WITH TRACE GRAVEL, 2.5Y 3/2 very dark grayish brown, moist, medium		0				
10	10'-11' bgs SW, FINE TO COARSE SAND FEW GRAVEL, moist, soft						
	11'-13' bgs SM, SILTY SAND WITH FEW GRAVEL, grayish brown, moist, stiff		0				
	13'-15' bgs SW FINE TO MEDIUM SAND WITH FEW GRAVEL, grayish brown, moist, stiff		0				
15	15'-20' bgs SW WELL GRADED SAND TRACE GRAVEL, predominantly fine-grained sand, 2.5Y 5/3 light olive brown, moist, medium.		0				
			0				
			0				
20							
25							

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BORING LOG: A3B12		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/08/2015	COMPLETION DATE: 04/08/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 150.22			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489043.79					
EASTING: 1193685.56					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' FILL						Hand augured to 5' bgs, disturbed soil overlying UST Area
5	5'-8.5' SC CLAYEY SAND WITH GRAVEL 25% fines, 20% fine sand, 20% medium sand, 20% coarse sand, 15% fine gravel		9				5'-Groundwater
			9				
	8.5'-10' bgs CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/1 dark gray, moist, stiff		34				
10	10'-14' bgs CL CLAY WITH SAND AND FEW GRAVEL, 2.5Y 4/1 dark gray, moist, stiff		14				
			49				
	14'-15' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL, 2.5Y 4/2, dark grayish brown to 2.5 5/3 light olive brown, moist, soft		27				
15			6				
	15'-20' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL, lenses of poorly sorted fine sand (17.5'-18' and 24.5'-25' bgs) 2.5 2.5 5/3 light olive brown, moist, medium		19				Petroleum odor
			7.2				
20	20'-22' bgs SP POORLY SORTED FINE SAND 2.5 5/3 light olive brown, moist, medium		3				
			1				
	22'-25' bgs SW FINE TO COARSE SAND WITH TRACE GRAVEL, 2.5Y 5/3, moist, medium		1				Still detect petroleum odor
25			1				



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BORING LOG: A3B13		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/08/2015	COMPLETION DATE: 04/08/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 150.10			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489031.89					
EASTING: 1193669.85					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs CL CLAY WITH FINE SAND FEW TO LITTLE GRAVEL 2.5Y 3/1 very dark gray, moist, stiff						
5	5'-10' bgs CL CLAY WITH FINE SAND FEW TO LITTLE GRAVEL 2.5Y 3/1 very dark gray, moist, stiff		0				Driller notes borehole is drier here Water fills into 5' from lower units
	8-9' bgs SP, FINE SAND lens 2.5Y 3/1 very dark gray		0				Ground water at 7'bgs
10	10'-17.5' SW-SM FINE TO COARSE SAND WITH SILT AND FEW GRAVEL, 2.5Y 4/1, dark gray, very stiff, moist		0.1				
			0.1				
			0				
			0				
15			0				
			0.1				
	17.5'-20' bgs SW FINE TO COARSE SAND WITH SILT AND FEW GRAVEL, grades finer towards 25' 2.5Y 4/1, dark gray, very stiff, moist, medium		0				
20							
25							

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BORING LOG: A3B14		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/08/2015	COMPLETION DATE: 04/08/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.87			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489051.83					
EASTING: 1193676.47					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs CL CLAY WITH FINE SAND AND FEW TO LITTLE GRAVEL 2.5Y 3/1 very dark gray, moist, stiff						Hand augured to 5' bgs
5	5'-10' bgs CL CLAY WITH FINE SAND AND FEW TO LITTLE GRAVEL 2.5Y 3/1 dark gray, moist, stiff		1				Groundwater fills to 4' bgs
			0.3				
10	10'-12.5' bgs SW-SC FINE SAND WITH CLAY AND FEW GRAVEL grades towards MEDIUM AND COARSE SAND towards 15' with more gravel, Gley 1 4/N, dark grey, wet, medium		0				
	12.5'-15' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL Gley 1 4/N, dark grey, wet, medium		5				
			5				
			8				
15	15'-20' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL, grades to finer sand at 17'-18' bgs and coarsens towards bottom, 2.5Y 4/3 olive brown, moist, medium		0.4				
			0.1				
			0.7				
20	20'-25' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL, 2.5Y 4/3 olive brown, moist, medium		0				
			0				
			0.2				
25							

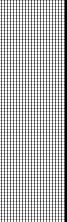








	MMEC Group 9210 Sky Park Court San Diego, CA 92123 (858) 278-3600	BORING LOG DESIGNATION	Page <u>1</u> of <u>1</u>
		A3B14	


BORING LOG: A3B15		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/08/2015	COMPLETION DATE: 04/08/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.12			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489066.04					
EASTING: 1193678.01					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs SC CLAYEY SAND WITH FEW TO LITTLE GRAVEL, 2.5Y 3/1 very dark gray, wet, medium						Hand augured to 5' bgs
5	5'-6' bgs SC CLAYEY SAND WITH GRAVEL, 2.5Y 3/1 very dark gray, wet, medium						Strong petroleum odor 6' bgs-Groundwater
	6'-10' bgs CL CLAY WITH SAND WITH FEW TO LITTLE GRAVEL, 2.5 Y 4/1 dark gray, moist, stiff		1				
			0.5				
			0.4				
10	10'-11' bgs SC CLAYEY SAND WITH GRAVEL 2.5 Y 4/1, wet, soft						Petroleum Odor
	11'-13' bgs CL CLAY WITH SAND AND FEW GRAVEL 2.5 Y 4/1 dark gray, moist, stiff		3				
	13'-15' bgs SC CLAYEY SAND WITH GRAVEL, fine to coarse sand, 2.5 Y 4/3 olive brown, moist, stiff		0.3				
			0.7				
15	15'-20' bgs SW WELL GRADED SAND WITH FEW GRAVEL, 2.5Y 4/3, olive brown, moist, medium						
			5.4				
			5.5				
			40				
20	20'-25' SW FINE TO COARSE SAND WITH FEW GRAVEL, 2.5 Y 4/3 olive brown, moist, medium						
			22				
			39				
25			20				

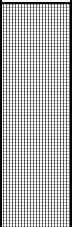





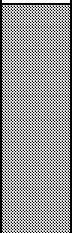


	MMEC Group 9210 Sky Park Court San Diego, CA 92123 (858) 278-3600	BORING LOG DESIGNATION	Page <u>1</u> of <u>1</u>
		A3B15	


BORING LOG: A3B16		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/08/2015	COMPLETION DATE: 04/08/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 148.92			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489084.19					
EASTING: 1193661.79					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs FILL						Construction debris and gravel from external site
5	5'-6.5' bgs SW FINE TO COARSE SAND WITH LITTLE GRAVEL, wet, medium		1.5				Petroleum fuel odor (heating oil)
	6.5'-10' bgs SW-SC FINE SAND WITH CLAY AND FEW GRAVEL, 4/Y Grey, moist, stiff, 6" coarse sand lens at 8' bgs.		8.5				
			8.7				
10	10'-11.5' bgs SP MEDIUM TO COARSE SAND TRACE GRAVEL, TRACE FILES, 2.5Y 3/1, very dark gray, wet, medium to soft grades to SW-SC		0.4				
	11.5'-13' bgs SW-SC FINE TO COARSE SAND WITH GRAVEL, Gley 1 4/N, moist, stiff		0.2				
	13'-15' bgs SW-SC FINE TO COARSE SAND WITH LITTLE GRAVEL, 2.5Y 4/2 dark grayish brown, moist, stiff		0.5				Petroleum fuel odor (heating oil)
15	15'-20' bgs SW WELL GRADED SAND WITH GRAVEL, fining down unit from fine to coarse sand, 2.5Y 4/3 olive brown, moist, medium		12				
			51				Petroleum fuel odor
			4				
20	20'-25' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL, 2.5Y 4/3 olive brown, moist		2.1				Petroleum fuel odor to bottom of unit
			7.4				
			7.6				
25							

	MMEC Group 9210 Sky Park Court San Diego, CA 92123 (858) 278-3600	BORING LOG DESIGNATION	Page <u>1</u> of <u>1</u>
		A3B16	


BORING LOG: A3B17		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/10/2015	COMPLETION DATE: 04/10/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.67			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489052.45					
EASTING: 1193635.00					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs FILL						Clay pipe
5	5'-6' bgs SW FINE TO COARSE SAND WITH LITTLE GRAVEL 2.5Y 4/3 olive brown, moist, soft to medium		0				Driller noted borehole filled with water 7.5'-11', but at 15-25' interval water drained into underlying sand layers
	6'-7.5' bgs SW-SC FINE TO COARSE SAND WITH CLAY		0				
	7.5'-8' bgs SW FINE TO COARSE SAND, wet, soft to medium						
	8'-10' bgs CL CLAY WITH SAND AND GRAVEL, 2.5 5/2 grayish brown, moist, stiff		0				
10	10'-10.5' bgs SW FINE TO COARSE SAND, wet, soft to medium						
	10.5'-15' bgs SW-SM SAND WITH SILT AND GRAVEL, 2.5Y 4/2 dark greyish brown to Gley 1 4/N, dark grey 13-15' bgs, wet, stiff		0				Petroleum odor sample here
			0				
			0				
15	15.5'-20' bgs SW FINE TO MEDIUM SAND WITH TRACE GRAVEL 2.5Y 5/3 light olive brown, moist, medium		0				
			0.3				
			0.2				
20	20'-25' bgs SP POORLY GRADED SAND, coarser from 20-21' grades to fine sand at 23-23.5', medium sand at 23.5'-25' bgs, 2.5Y 5/3 light olive brown, moist, medium		0.3				
			0.2				
			0.1				
25							

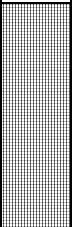



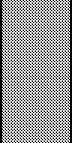


	MMEC Group 9210 Sky Park Court San Diego, CA 92123 (858) 278-3600	BORING LOG DESIGNATION	Page <u>1</u> of <u>1</u>
		A3B17	


BORING LOG: A3B18		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/10/2015	COMPLETION DATE: 04/10/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 145.34			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489158.54					
EASTING: 1193614.16					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs FILL						Hand augured to 3' bgs but kept collapsing
5	5'-5.5' SW FINE TO COARSE SAND WITH LITTLE GRAVEL		0				Drillers noted area very dry, almost called refusal
	5.5'-10' bgs SW-SM SAND WITH SILT AND LITTLE GRAVEL, 2.5Y 4/2 dark grayish brown to Gley 1 4/N dark gray, to 8'-10' gradual transition, moist, medium to stiff, drier than previous boreholes		0				
			0				
10			0				
	11'-13' bgs SW WELL GRADED SAND WITH SOME GRAVEL 2.5Y 4/2 to 2.5Y 5/3		0				
	13'-13.5' bgs SP POORLY SORTED FINE SAND, 2.5Y 5/3 lt olive br		0				
	13.5'-15' bgs SW FINE TO MEDIUM SAND		0				
15	15'-16' bgs SW-SM FINE SAND WITH SILT AND TRACE GRAVEL, Gley 1 4/N, dark gray, moist, stiff		0				
	16'-20' bgs SW SAND WITH FEW GRAVEL, gravel mostly in lenses around 17.5'-18.5' bgs, 2.5Y 4/2 dark grayish brown, moist, medium		0				
			0				
20	20'-21.5' SW-SC SAND WITH CLAY AND FEW GRAVEL, 2.5Y 4/2 dark grayish brown, moist, stiff		0				
	21.5'-25' SW FINE TO COARSE SAND WITH TRACE GRAVEL, 2.5Y 4/2 to 2/5Y 5/3 dark grayish brown to light olive brown, moist, medium		0				
25			0				

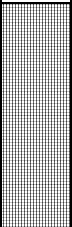

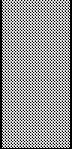


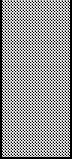


	MMEC Group 9210 Sky Park Court San Diego, CA 92123 (858) 278-3600	BORING LOG DESIGNATION	Page <u>1</u> of <u>1</u>
		A3B18	


BORING LOG: A3B19		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/10/2015	COMPLETION DATE: 04/10/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 148.06			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 20			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489114.89					
EASTING: 1193734.12					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs FILL						Hand augured to 5' bgs
5	5'-10' bgs SW-SC FINE TO COARSE SAND WITH CLAY AND LITTLE GRAVEL, 2.5Y 5/2 grayish brown, moist, very stiff		0				
10	10'-10.5' bgs SC CLAYEY SAND		0				
	10.5'-11.5' bgs SW-SC SAND WITH CLAY AND GRAVEL, 2.5Y 4/2		0				
	11.5'-15' bgs SC CLAYEY SAND		0				
15	15'-16' bgs SC CLAYEY SAND, 2.5Y 5/2 grayish brown, moist, stiff		0				
	16'-20' bgs SW FINE TO COARSE SAND WITH FEW GRAVEL 2.5Y 5/3 light olive brown		0				
20							
25							

	MMEC Group 9210 Sky Park Court San Diego, CA 92123 (858) 278-3600	BORING LOG DESIGNATION	Page <u>1</u> of <u>1</u>
		A3B19	

BORING LOG: A3B20		PROJECT NAME: Subsurface Investigation NAS Whidbey Island A3 UST		PROJECT NUMBER: 502314JP01	
CLIENT: NAVFAC NW/NAS Whidbey Island		PROJECT LOCATION: NAS Whidbey Island, WA			
START DATE: 04/10/2015	COMPLETION DATE: 04/10/2015	LOGGED BY: Kelli Miller/Joseph Dumont	CHECKED BY: Kevin Olness		
DRILLING CONTRACTOR: Cascade Drilling		GROUND SURFACE ELEVATION (ft-MSL): 149.45			
DRILLING METHOD: Direct Push		TOTAL DEPTH (feet bgs): 25			
EQUIPMENT: Geoprobe 7730DT		BORING DIAMETER (in): 2 3/4			
NORTHING: 489054.22					
EASTING: 1193607.79					

DEPTH (ft bgs)	LITHOLOGIC DESCRIPTION	GRAPHIC	PID (ppm)	SAMPLE			REMARKS
				RECOVERY	NUMBER	TYPE	
0	0'-5' bgs FILL						Hand augured to 5' bgs
5	5'-6' bgs SW SAND WITH LITTLE TO SOME GRAVEL 2.5Y 3/2 dark greyish brown, moist, medium		0				
	6'-9.5' bgs SC CLAYEY SAND WITH LITTLE GRAVEL 2.5Y 4/2 dark grayish brown, moist, stiff		0				
10	9.5'-10.5' bgs SW-SC SAND WITH CLAY AND LITTLE TO SOME GRAVEL 2.5Y 4/2 moist, stiff		0				Borehole filling with water from layer between 8' to 12' bgs
	10.5'-11/5' bgs CL CLAY WITH GRAVEL 2.5Y 4/1 dark gray, moist, stiff		0				
	11.5'-15' bgs SW-SC SAND WITH CLAY AND GRAVEL Gley 1 4/N dark gray, moist to dry, stiff		0				
15	15'-20' bgs SW WELL SORTED SAND WITH GRAVEL 2.5Y 5/2 grayish brown, wet, medium, FINE SAND, poorly sorted; coarsens towards 20' bgs poorly sorted gravel generally from 15-17'		0				Faint petroleum odor
20	20'-25' SP POORLY GRADED FINE SAND 2.5Y 5/3 light olive brown to 2.5Y 4/2 dark greyish brown, moist, medium		0				Water level draining now at 10', once drillers hit sand units. Driller estimates coming in between 6'-8' bgs
25			0				

	MMEC Group 9210 Sky Park Court San Diego, CA 92123 (858) 278-3600	BORING LOG DESIGNATION	Page <u>1</u> of <u>1</u>
		A3B20	

Appendix C
RESOURCE PROTECTION WELL REPORTS
(Notice of Intent and well reports prepared and submitted by Cascade Drilling, LP)

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RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. EE05500 AE31363

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number*

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Consulting Firm AMEC Foster Wheeler

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County Island

Unique Ecology Well ID

Tag No. _____

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E EWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Lat/Long (s,t,r) Lat Deg x Lat Min/Sec x

Long Deg x Long Min/Sec x

Materials used and the information reported above are true to my best knowledge and belief

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print) KASOM BOSLE

Driller/Trainee Signature [Signature]

Cased or Uncased Diameter 2 1/4" Static Level 6'

Driller/Trainee License No. 2501

Work/Decommission Start Date 4/9/15

If trainee, licesned drillers' _____

Work/Decommission Completed Date 4/10/15

Signature and License No. _____

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2 FT

0 - 5 FT

FILL
SAND & GRAVELS

BACKFILL

8 FT

0 5 - 10 FT

BRITTLE
CHIPS

GREY SILT
WITH GRAVEL

DEPTH OF BORING 10 FT

0 - FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. EE05500 AE31363

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print) KASEY GORDIE

Driller/Trainee Signature [Signature]

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Property Owner

Site Address

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 T2N 33N R 1E

☒ EWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

WWM

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level 6'

Work/Decommission Start Date

4/9/15

Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2

FT

0 - 5 FT

Fine SAND / GRAVEL

BACKFILL

10

FT

BENTONITE CHIPS

0 5 - 12 FT

GREY SILT WITH GRAVEL

DEPTH OF BORING

12

FT

0 - FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. EE05500 AE31363

Construction/Decommission

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice
of Intent Number _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for
construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature KASEY GABLE

Driller/Trainee License No. 2501

If trainee, licensed drillers'

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Ault Field Rd & Langley Blvd

Property Owner

Site Address

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 T2N 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level 6'

Work/Decommission Start Date

4/9/15

Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2

FT

0 - 5 FT

FILL

SAND / GRAVELS

BACKFILL

11

FT

BENTONITE
CHIPS

0 5 - 13 FT

GREY SILT WITH
GRAVELS

DEPTH OF BORING

13

FT

0 - FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature KASEY GOBLE

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

CURRENT

Notice of Intent No. EE05560 AE 31363

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner

Site Address

City

Oak Harbor

County

Island

Location

1/4 SE

1/4 SW Sec

22 TWN

33N R

1E

☒ EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level

6'

Work/Decommission Start Date

4/7/15

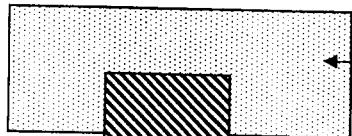
Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description



CONCRETE SURFACE SEAL

2 FT

BACKFILL

11 FT

BENTONITE CHIPS

DEPTH OF BORING

13

FT

0 - 5 FT

FILL

0 5 - 13 FT

GREY SILT WITH GRAVELS

0 13 - FT

CLAY + SILT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=201)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. EE05500 AE31363

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Consulting Firm AMEC Foster Wheeler

Property Owner _____

Site Address _____

City _____

Oak Harbor

County _____

Island _____

Unique Ecology Well ID _____

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print) _____

Driller/Trainee Signature _____

Driller/Trainee License No. _____

If trainee, licensed drillers' _____

Signature and License No. _____

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r)

Lat Deg _____

x

Lat Min/Sec _____

x

Long Deg _____

x

Long Min/Sec _____

x

Tax Parcel No. _____

Cased or Uncased Diameter _____

2 1/4"

Static Level 6'

Work/Decommission Start Date _____

4/7/15

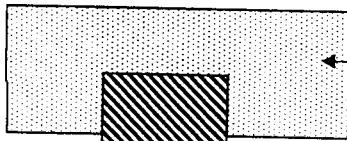
Work/Decommission Completed Date _____

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description



CONCRETE SURFACE SEAL

2 FT

BACKFILL

11 FT

BENTONITE CHIPS

DEPTH OF BORING

13 FT

0 - 5 FT

FILL

0 5 - 13 FT

GREY SILT WITH GRAVELS

0 - 13 FT

BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. EE05500 AE31363

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print) KASEY GOODE

Driller/Trainee Signature [Signature]

Driller/Trainee License No. 2501

If trainee, licensed drillers'

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County Island

☒ EWM

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

WWM

Lat/Long (s,t,r) Lat Deg x Lat Min/Sec x

Long Deg x Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4" Static Level 6'

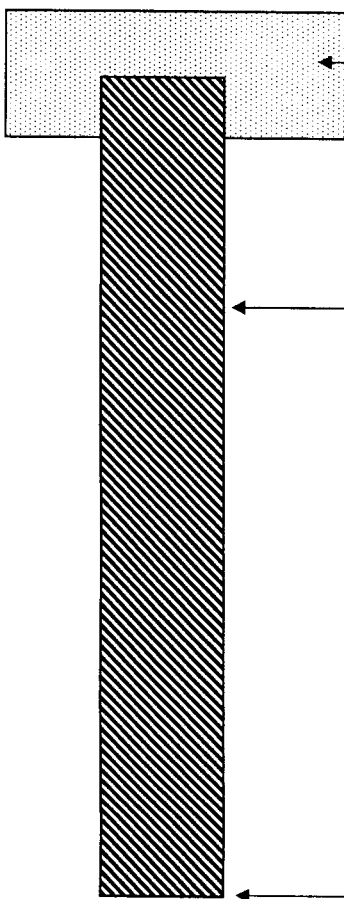
Work/Decommission Start Date 4/9/15

Work/Decommission Completed Date 4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT FILL SAND / GRAVELS
	BACKFILL	<u>12</u> FT BENTONITE CHIPS	<u>0 5 - 14</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>14</u> FT	<u>0 -</u> FT

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rec=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice
of Intent Number _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID
Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for
construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature _____

Driller/Trainee License No. 3141

If trainee, licensed drillers' _____

Signature and License No. _____

CURRENT

Notice of Intent No. SE54405 AE31364

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Ault Field Rd & Langley Blvd

Property Owner _____

Site Address _____

City _____

Oak Harbor

County _____

Island _____

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

EWM

WWM

Lat/Long (s,t,r)

Lat Deg _____

x

Lat Min/Sec _____

x

Long Deg _____

x

Long Min/Sec _____

x

Tax Parcel No. _____

Cased or Uncased Diameter _____

2 1/4

Static Level 5'

Work/Decommission Start Date _____

4-8-15

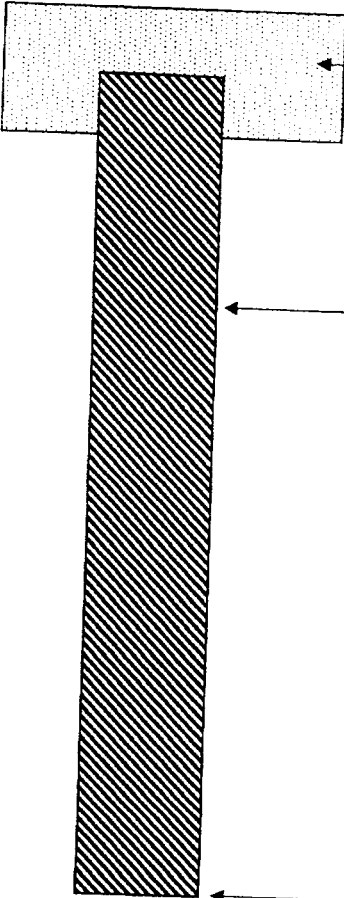
Work/Decommission Completed Date _____

4-6-15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT Medium Grey sand with small gravels
	BACKFILL	<u>18</u> FT <u>Best chip</u>	<u>0 5 - 15</u> FT Hard grey silt with small gravels
	DEPTH OF BORING	<u>20</u> FT	<u>0 15 - 20</u> FT light Brown medium sand

Scale 1" = _____

Page _____ of _____

ECY 056-12 (Rev. 2-01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Consulting Firm AMEC Foster Wheeler

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County Island

EWM

Unique Ecology Well ID

Tag No. _____

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

WWM

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards.

Lat/Long (S, Lr) Lat Deg x Lat Min/Sec x
Long Deg x Long Min/Sec x

Materials used and the information reported above are true to my best knowledge and belief.

Tax Parcel No. _____

☒ Driller ☐ Trainee Name (Print)

Aaron Ocheltree

Driller/Trainee Signature _____

Cased or Uncased Diameter 2 1/4 Static Level 6'

Driller/Trainee License No. 3141

Work/Decommission Start Date 4-6-15

If trainee, licensed drillers' _____

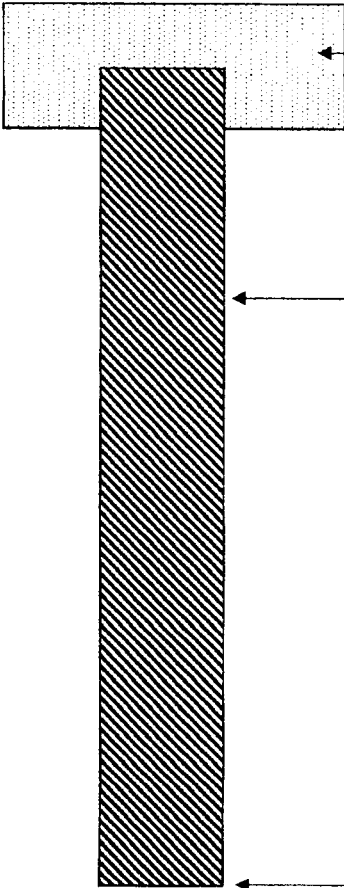
Work/Decommission Completed Date 4-6-15

Signature and License No. _____

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT medium grey sand with small gravels
	BACKFILL	<u>23</u> FT <u>Base Chip</u>	<u>0 5 - 15</u> FT Hard Grey silt with small gravels
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT light Brown medium sand

Scale 1" = _____

Page _____ of _____

ECY 350-12 (Rev. 2-01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice
of Intent Number _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards.

Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Trainee Name (Print)

Aaron Ocheltree

Driller/Trainee Signature

Driller/Trainee License No. 3141

If trainee, licensed drillers'

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Ault Field Rd & Langley Blvd

Property Owner

Site Address

City

Oak Harbor

County

Island

EWM

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

WWM

Lat/Long (s.t.r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4

Static Level 5'

Work/Decommission Start Date

4-6-15

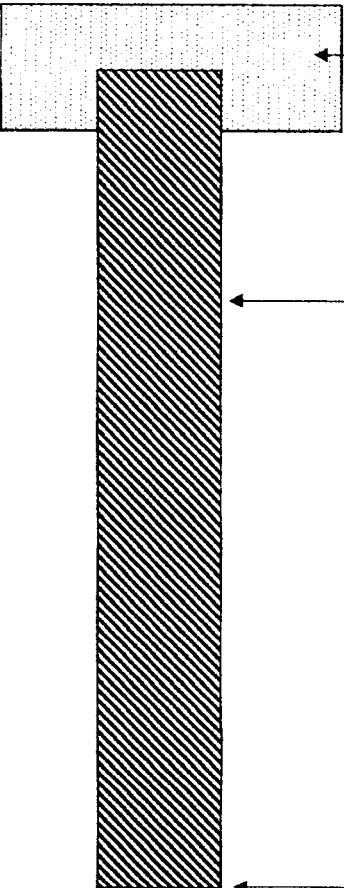
Work/Decommission Completed Date

4-6-15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT medium gray sand with small gravels
	BACKFILL	<u>23</u> FT <u>Best chip</u>	<u>0 5 - 15</u> FT Hard Gray silt with small gravels
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT light Brown medium sand

Scale 1" = _____

Page _____ of _____

ECY 350-12 (Rev. 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No.

SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission ORIGINAL INSTALLATION Notice
of Intent Number _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards.

Materials used and the information reported above are true to my best knowledge and belief.

☒ Driller ☐ Trainee Name (Print)

Aaron Ocheltree

Driller/Trainee Signature _____

Driller/Trainee License No. 3141

If trainee, licensed drillers' _____

Signature and License No. _____

Property Owner

Whidbey Island Naval Air Station

Site Address

Ault Field Rd & Langley Blvd

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4

State Level

5'

Work/Decommission Start Date

4-6-15

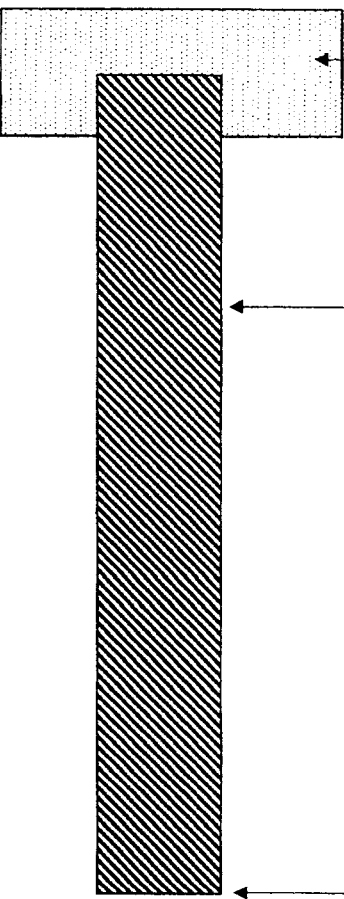
Work/Decommission Completed Date

4-6-15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT medium grey sand with small gravels
	BACKFILL	<u>23</u> FT <u>Boat chip</u>	<u>0 5 - 15</u> FT Hard Grey silt with small gravels
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT light Brown medium sand

Scale 1" = _____

Page _____ of _____

FGY 350 (2/Rec-v 2.01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County Island

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E EWM

Lat/Long (s.t.r) Lat Deg x Lat Min/Sec x WWM

Long Deg x Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4 Static Level 5'

Work/Decommission Start Date 4-6-15

Work/Decommission Completed Date 4-6-15

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature Aaron Ocheltree

Driller/Trainee License No. 3141

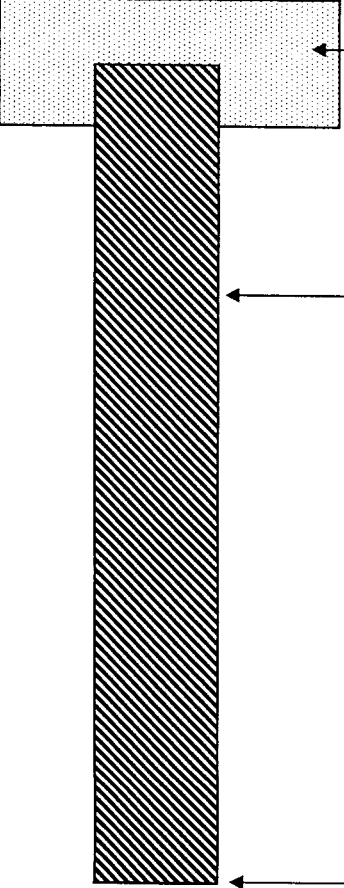
If trainee, licensed drillers' _____

Signature and License No. _____

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT medium grey sand with small gravels
	BACKFILL	<u>23</u> FT <u>Best chip</u>	<u>0 5 - 15</u> FT Hard Grey silt with small gravels
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT light Brown medium sand

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev-v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature KASEY GOBLE

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

CURRENT

Notice of Intent No. SE54405 AE31364

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Ault Field Rd & Langley Blvd

Property Owner _____

Site Address _____

City Oak Harbor

County _____

Island _____

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r)

Lat Deg x

Lat Min/Sec x

Long Deg x

Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4"

Static Level 6'

Work/Decommission Start Date 4/7/15

Work/Decommission Completed Date 4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2 FT

0 - 5 FT

FILL

BACKFILL

18 FT

BENTONITE CHIPS

0 5-15 FT

GREY SILT WITH GRAVELS

DEPTH OF BORING 20 FT

0 15-20 FT

BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature KASEY GOBLE

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Property Owner

Site Address

Ault Field Rd & Langley Blvd

City

Oak Harbor

County

Island

Location

1/4 SE

1/4 SW Sec

22 TWN

33N R

1E

EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level 6'

Work/Decommission Start Date

4/7/15

Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2 FT

0 - 5 FT

FILL

BACKFILL

18 FT

BENTONITE CHIPS

0 5 - 15 FT

GREY SILT WITH GRAVELS

DEPTH OF BORING 20 FT

0 15 - 20 FT

BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print) KASEY GOBLE

Driller/Trainee Signature [Signature]

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner

Whidbey Island Naval Air Station

Site Address

Ault Field Rd & Langley Blvd

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r)

Lat Deg x

Lat Min/Sec x

Long Deg x

Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level

6'

Work/Decommission Start Date

4/7/15

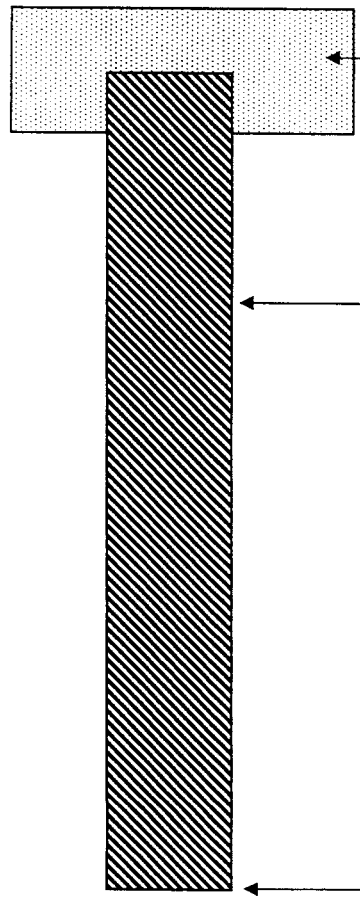
Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT FILL
	BACKFILL	<u>18</u> FT BENTONITE CHIPS	<u>0 5 - 15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>20</u> FT	<u>0 15 - 20</u> FT BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev= 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print) KASEY GOBLE

Driller/Trainee Signature [Signature]

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County Island

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

EWM

WWM

Lat/Long (s,t,r) Lat Deg x Lat Min/Sec x

Long Deg x Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4" Static Level 6'

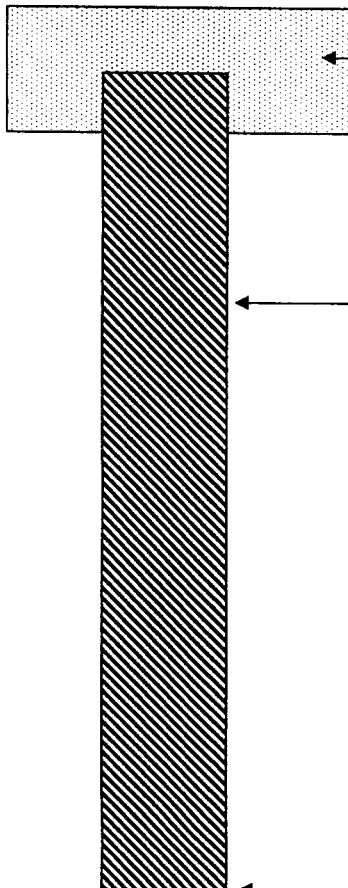
Work/Decommission Start Date 4/7/15

Work/Decommission Completed Date 4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT FILL
	BACKFILL	<u>18</u> FT BENTONITE CHIPS	<u>0 5 - 15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>20</u> FT	<u>0 15 - 20</u> FT BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print) KASEY GOBLE

Driller/Trainee Signature [Signature]

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County _____ Island _____

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

EWM

WWM

Lat/Long (s,t,r) Lat Deg x Lat Min/Sec x

Long Deg x Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4" Static Level 6'

Work/Decommission Start Date 4/7/15

Work/Decommission Completed Date 4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2 FT

0 - 5 FT

FILL

BACKFILL

25 FT

BENTONITE
CHIPS

0 5 - 15 FT

GREY SILT
WITH GRAVELS

DEPTH OF BORING 25 FT

0 15 - 25 FT

BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature

Driller/Trainee License No.

KASEY GOBLE
[Signature]
2501

If trainee, licensed drillers'

Signature and License No.

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County Island

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r) Lat Deg x Lat Min/Sec x

Long Deg x Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4" Static Level 6'

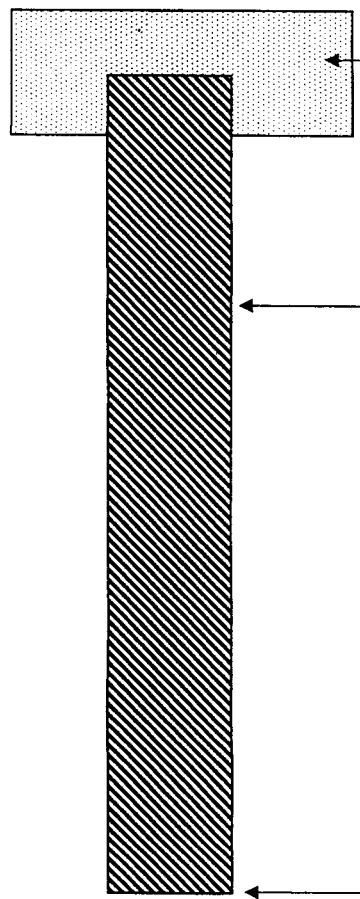
Work/Decommission Start Date 4/7/15

Work/Decommission Completed Date 4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT FILL
	BACKFILL	<u>23</u> FT BENTONITE CHIPS	<u>0 5 - 15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

WELL CONSTRUCTION CERTIFICATION: I constructed and/or accept responsibility for construction of this well, and its compliance with all Washington well construction standards

Materials used and the information reported above are true to my best knowledge and belief

☒ Driller ☐ Trainee Name (Print) KASEY GOBLE

Driller/Trainee Signature [Signature]

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County Island

☒ EWM

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

WWM

Lat/Long (s,t,r) Lat Deg x

Lat Min/Sec x

Long Deg x

Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4" Static Level 6'

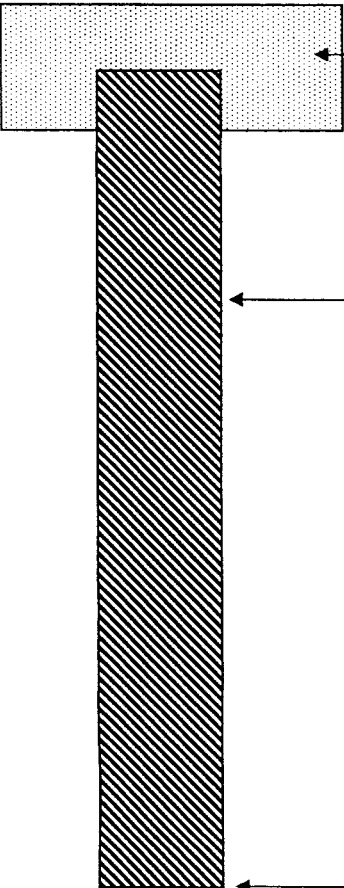
Work/Decommission Start Date 4/7/15

Work/Decommission Completed Date 4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT FILL
	BACKFILL	<u>18</u> FT BENTONITE CHIPS	<u>0 5 - 15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>20</u> FT	<u>0 15 - 20</u> FT BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev-v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice*
of Intent Number _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

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☒ Driller ☐ Trainee Name (Print)

Driller/Trainee Signature

Driller/Trainee License No.

If trainee, licesned drillers'

Signature and License No.

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Property Owner

Site Address

Ault Field Rd & Langley Blvd

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No.

Cased or Uncased Diameter

2 1/4"

Static Level

6'

Work/Decommission Start Date

4/7/15

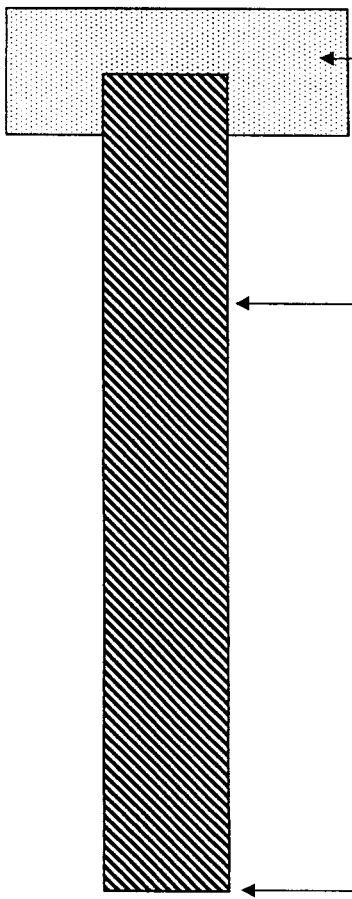
Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT <u>FILL</u>
	BACKFILL	<u>23</u> FT <u>BENTONITE CHIPS</u>	<u>0 5 - 15</u> FT <u>GREY SILT WITH GRAVELS</u>
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT <u>BROWN SAND</u>

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rec=v 2'01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

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Driller/Trainee Signature

Driller/Trainee License No.

If trainee, licensed drillers'

Signature and License No.

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner

Site Address

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

EWM

WWM

Lat/Long (s,t,r

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No.

Cased or Uncased Diameter

2 1/4"

Static Level

6'

Work/Decommission Start Date

4/7/15

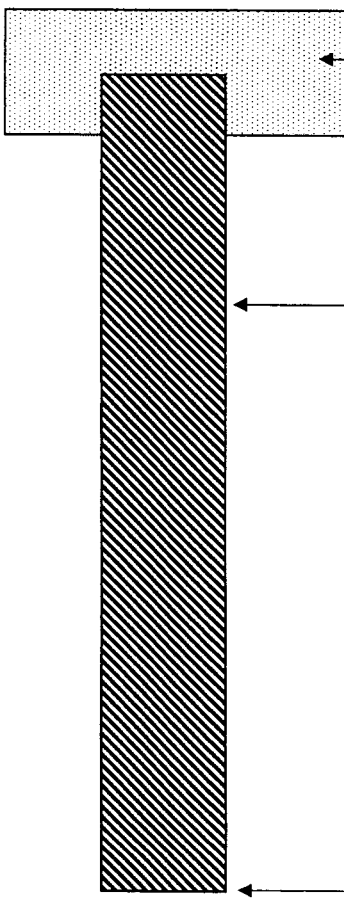
Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

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	BACKFILL	<u>23</u> FT BENTONITE CHIPS	<u>0 5 - 15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

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(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

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Notice of Intent No. SE54405 AE31364

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Driller/Trainee License No. 2501

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Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner Whidbey Island Naval Air Station

Site Address Ault Field Rd & Langley Blvd

City Oak Harbor County _____ Island _____

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r) Lat Deg x Lat Min/Sec x

Long Deg x Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4" Static Level 6'

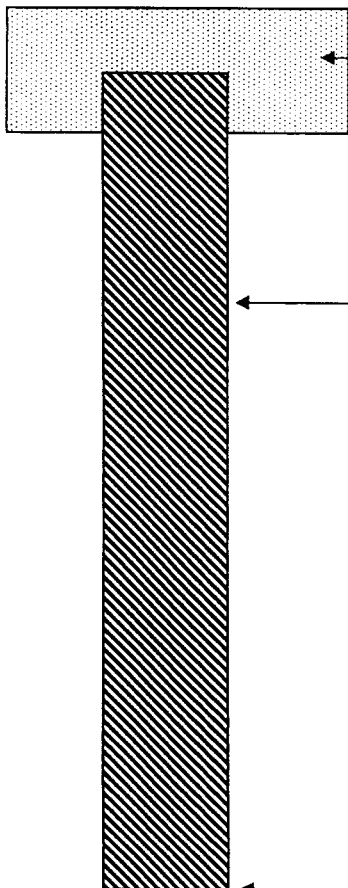
Work/Decommission Start Date 4/7/15

Work/Decommission Completed Date 4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT FILL
	BACKFILL	<u>23</u> FT BENTONITE CHIPS	<u>0 5 - 15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

Unique Ecology Well ID

Tag No. _____

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Driller/Trainee License No. 2501

If trainee, licensed drillers'

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Property Owner

Site Address

Ault Field Rd & Langley Blvd

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level

6'

Work/Decommission Start Date

4/7/15

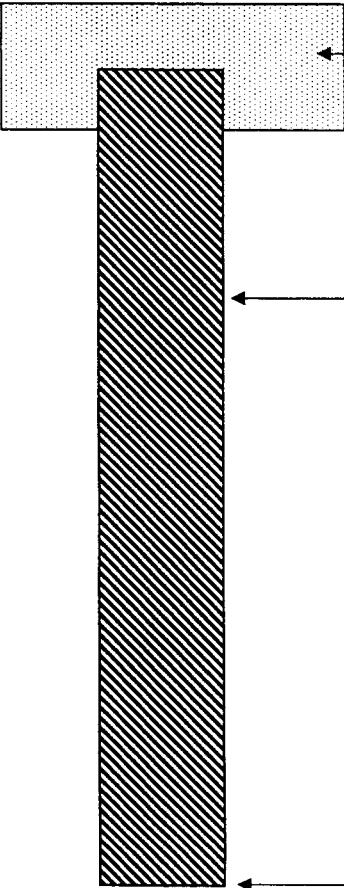
Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

	CONCRETE SURFACE SEAL	<u>2</u> FT	<u>0 - 5</u> FT <u>FILL</u>
	BACKFILL	<u>23</u> FT <u>BENTONITE CHIPS</u>	<u>0 5 - 15</u> FT <u>GREY SILT WITH GRAVELS</u>
	DEPTH OF BORING	<u>25</u> FT	<u>0 15 - 25</u> FT <u>BROWN SAND</u>

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Consulting Firm AMEC Foster Wheeler

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Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Whidbey Island Naval Air Station

Property Owner

Site Address

Ault Field Rd & Langley Blvd

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level 6'

Work/Decommission Start Date

4/7/15

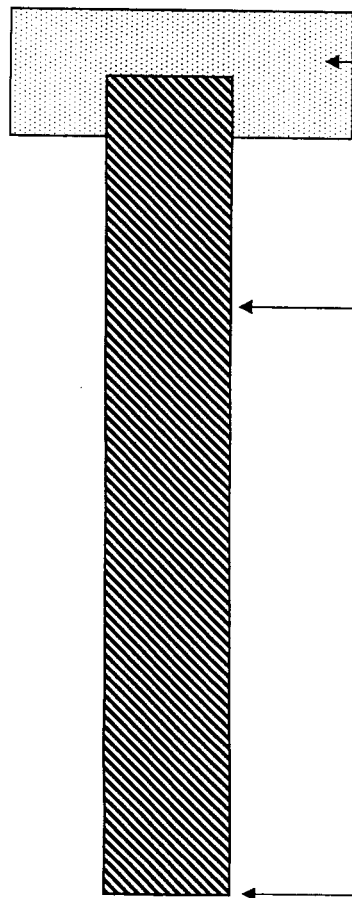
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4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

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	BACKFILL	<u>18</u> FT BENTONITE CHIPS	<u>0 5-15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING	<u>20</u> FT	<u>0 15</u> FT BROWN SAND

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Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

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Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Consulting Firm AMEC Foster Wheeler

Property Owner

Site Address

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level 6'

Work/Decommission Start Date

4/7/15

Work/Decommission Completed Date

4/10/15

Unique Ecology Well ID

Tag No. _____

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Driller/Trainee Signature

Driller/Trainee License No.

KASEY GOBLE

2501

If trainee, licensed drillers'

Signature and License No. _____

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2 FT

0 - 5 FT

FILL

BACKFILL

23 FT

BENTONITE CHIPS

0 5-15 FT

GREY SILT WITH GRAVELS

DEPTH OF BORING 25 FT

0 15-25 FT

BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

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Notice of Intent No. SE54405 AE31364

Construction/Decommission

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Driller/Trainee Signature KASEY GOBLE

Driller/Trainee License No. 2501

If trainee, licensed drillers'

Signature and License No. _____

Type of Well

☒ Resource Protection

☐ Geotechnical Soil Boring

Property Owner

Site Address

City

Oak Harbor

County

Island

Location

1/4 SE 1/4 SW Sec 22 TWN 33N R 1E

☒ EWM

WWM

Lat/Long (s,t,r)

Lat Deg

x

Lat Min/Sec

x

Long Deg

x

Long Min/Sec

x

Tax Parcel No. _____

Cased or Uncased Diameter

2 1/4"

Static Level 6'

Work/Decommission Start Date

4/7/15

Work/Decommission Completed Date

4/10/15

Construction/Design

Well Data 103-15-0717

Formation Description

CONCRETE SURFACE SEAL

2 FT

0 - 5 FT

FILL

BACKFILL

23 FT

BENTONITE CHIPS

0 5 - 15 FT

GREY SILT WITH GRAVELS

DEPTH OF BORING 25 FT

0 15 - 25 FT

BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

RESOURCE PROTECTION WELL REPORT

(SUBMIT ONE WELL REPORT PER WELL INSTALLED)

CURRENT

Notice of Intent No. SE54405 AE31364

Construction/Decommission

☒ Construction

☐ Decommission *ORIGINAL INSTALLATION Notice of Intent Number* _____

Type of Well

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Consulting Firm AMEC Foster Wheeler

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Driller/Trainee Signature KASEY GOBLE

Driller/Trainee License No. 2501

If trainee, licensed drillers' _____

Signature and License No. _____

Property Owner _____

Site Address _____

City Oak Harbor County _____ Island _____

Location 1/4 SE 1/4 SW Sec 22 TWN 33N R 1E EWM

Lat/Long (s,t,r) Lat Deg x Lat Min/Sec x

Long Deg x Long Min/Sec x

Tax Parcel No. _____

Cased or Uncased Diameter 2 1/4" Static Level 6'

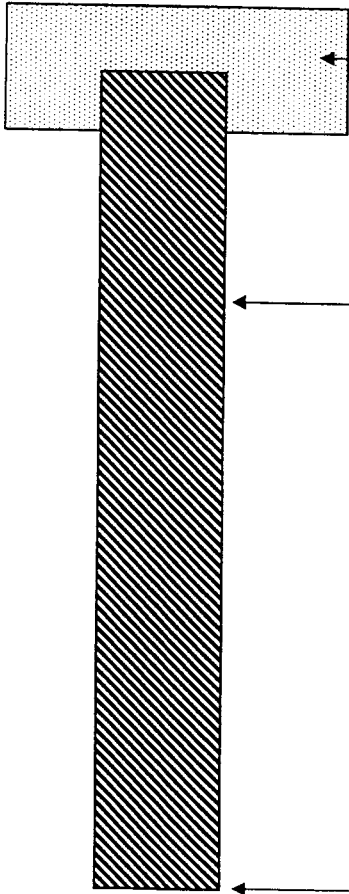
Work/Decommission Start Date 4/7/15

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Construction/Design

Well Data 103-15-0717

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	BACKFILL <u>23</u> FT BENTONITE CHIPS	<u>0 5 - 15</u> FT GREY SILT WITH GRAVELS
	DEPTH OF BORING <u>25</u> FT	<u>0 15 - 25</u> FT BROWN SAND

Scale 1" = _____

Page _____ of _____

ECY 050-12 (Rev=v 2/01)

Appendix D

GROUNDWATER SAMPLING FIELD FORMS

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MMEC Group
GROUNDWATER
SAMPLING FIELD FORM

Job #: 5023-14-JP01

Date: 4/10/15

Page 1 of 1

Field Personnel: J. Dumont, K. Miller

Monitoring Well ID: A3MW1

Start Time: 10:20

Weather Conditions: overcast, windy, cool

Approx. Air Temp (F): 50°F

INITIAL WELL DATA & WELL PURGING INFORMATION

Water Temperature (degree C)	Water pH (S.U.)	Specific Conductivity (µS/cm)	Turbidity (NTUs)	Dissolved Oxygen (mg/L)	ORP (mV)	Water Level (feet bgs)	Time (0:00 - 23:59)	Volume Purged (milliliters)
						4.17	12:00	
11.10	6.73	450	374	3.75	-5.4	4.21	16:25	180 mL
11.10	6.68	443	564	3.31	-17.9		16:30	320 mL
11.11	6.65	438	557	3.38	-21.9		16:33	510 mL
11.08	6.64	432		3.40	-12.2		16:36	720 mL
ran dry Sampled								

Stabilization: 3 consecutive readings within:

±1°C

±0.1 S.U.

±0.1 µS

<5NTU

±0.2 mg/L

±10 mV

-

-

-

Results of Field Ferrous Iron Kit (mg/L): NA

Total Purged: ~0.5 gallons

Measurements: 0.5 inch tubing: 0.020 gallons/linear foot

2" well casing: 0.17 gal/linear foot

4" well casing: 0.65 gal/linear foot

Purge Pumping Rate (approx. mL/min):

180 mL/min

Approx. Pump/Intake Depth:

screen

Well Yield: High / Moderate (Low)

Decontamination Method:

NA Dedicated Tubing

WELL CONDITION

Casing Size and Type: 3 1/4" PVC

Casing Condition: OK / NA / Needs Repairs/Repaired

Lock Condition:

OK / NA / Needs Repairs/Repaired

Cap Condition: OK / NA / Needs Repairs/Repaired

Monument Condition:

OK / NA / Needs Repairs/Repaired

NOTES: Temp Well

SAMPLING INFORMATION / DATA

QA/QC Sample (circle one): Duplicate

Lab QA/QC (NONE)

Sampling Method (circle one):

dedicated Dual Valve Pump

(peristaltic pump)

Analytical Parameters	Minimum Sample Vol.	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
TPH-g	120 mL	HCL	40 mL	3	A3MW1-GW	17:10
TPH-d	1000 mL		500 mL	2	"	"
VOCs	120 mL	HCL	40 mL	3	"	"
Total lead	100 mL	HNO ₃	250 mL	1	"	"
					"	"

Method of Transportation of samples: FedEx

All samples were immediately placed into a cooler and packed with ice or "Blue Ice" (YES) NO

Field Observations/Notes of Sampling Event:

Signature of Field Personnel:

Monitoring Well ID: A3MW2

Approx. Air Temp (F): 50°F

INITIAL WELL DATA & WELL PURGING INFORMATION

[illegible]

Stabilization:	3 consecutive readings within:
----------------	--------------------------------

 $\pm 1^{\circ}\text{C}$

± 0.1 S.U.

 $\pm 0.1 \mu\text{S}$

<5NTU

 $\pm 0.2 \text{ mg/L}$

± 10 mV

—

1

Results of Field Ferrous Iron Kit (mg/L):

Total Purged:	≈ 2.5 gallons
---------------	---------------

Measurements: 0.5 inch tubing: 0.020 gallons/linear foot

2" well casing: 0.17 gal/linear foot

4" well casing: 0.65 gal/linear foot

Purge Pumping Rate (approx. mL/min):

300ml/min

Approx. Pump/Intake Depth:

screen

Well Yield: High / Moderate / Low

Decontamination Method:

MA Dedicated Things

WELL CONDITION

Casing Size and Type: 3 1/4" PVC

Casing Condition:	OK / NA / Needs Repairs/Repaired
-------------------	----------------------------------

Lock Condition:	OK / NA / Needs Repairs/Repaired
-----------------	----------------------------------

Cap Condition:	OK / NA / Needs Repairs/Repaired
----------------	----------------------------------

Monument Condition:	OK / NA / Needs Repairs/Repaired
---------------------	----------------------------------

NOTES: Temp Wells

SAMPLING INFORMATION / DATA

QA/QC Sample (circle one): Duplicate

Lab QA/QC (NONE)

Sampling Method (circle one):

dedicated Dual Valve Pump

peristaltic pump

Analytical Parameters	Minimum Sample Vol.	Preservative	Bottle Size	Number of bottles	Sample ID	Time Sampled
TPH-g	120 mL	HCL	40 mL	3	A3MW2-GW	13:35
TPH-d	1000 mL		500 mL	2	"	"
VOCs	120 mL	HCL	40 mL	3	"	"
Total lead	100 mL	HNO ₃	250 mL	1	"	"

Method of Transportation of samples: overnight FedEx

All samples were immediately placed into a cooler and packed with ice or "Blue Ice" (YES) NO

Field Observations/Notes of Sampling Event:

Strang oder frommweil

Signature of Field Personnel:

Signature of Field Personnel: *[Signature]*

Appendix E SURVEY REPORT

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UST A3 Naval Air Station, Whidbey Island, Oak Harbor, WA
Survey Date: April 10, 2015

Monitoring Wells

Pt.#	Northing	Easting	Ground Elev.	Top of PVC casing Elev	Description
100	489049.93	1193656.39	149.94	150.33	A3 MW1
101	489053.30	1193679.21	149.94	152.14	A3 MW2
102	489066.29	1193684.77	149.34	150.50	A3 MW3
103	489082.75	1193651.71	148.96	151.86	A3 MW4

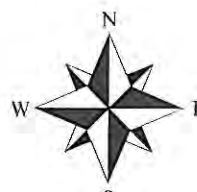
Bore Holes

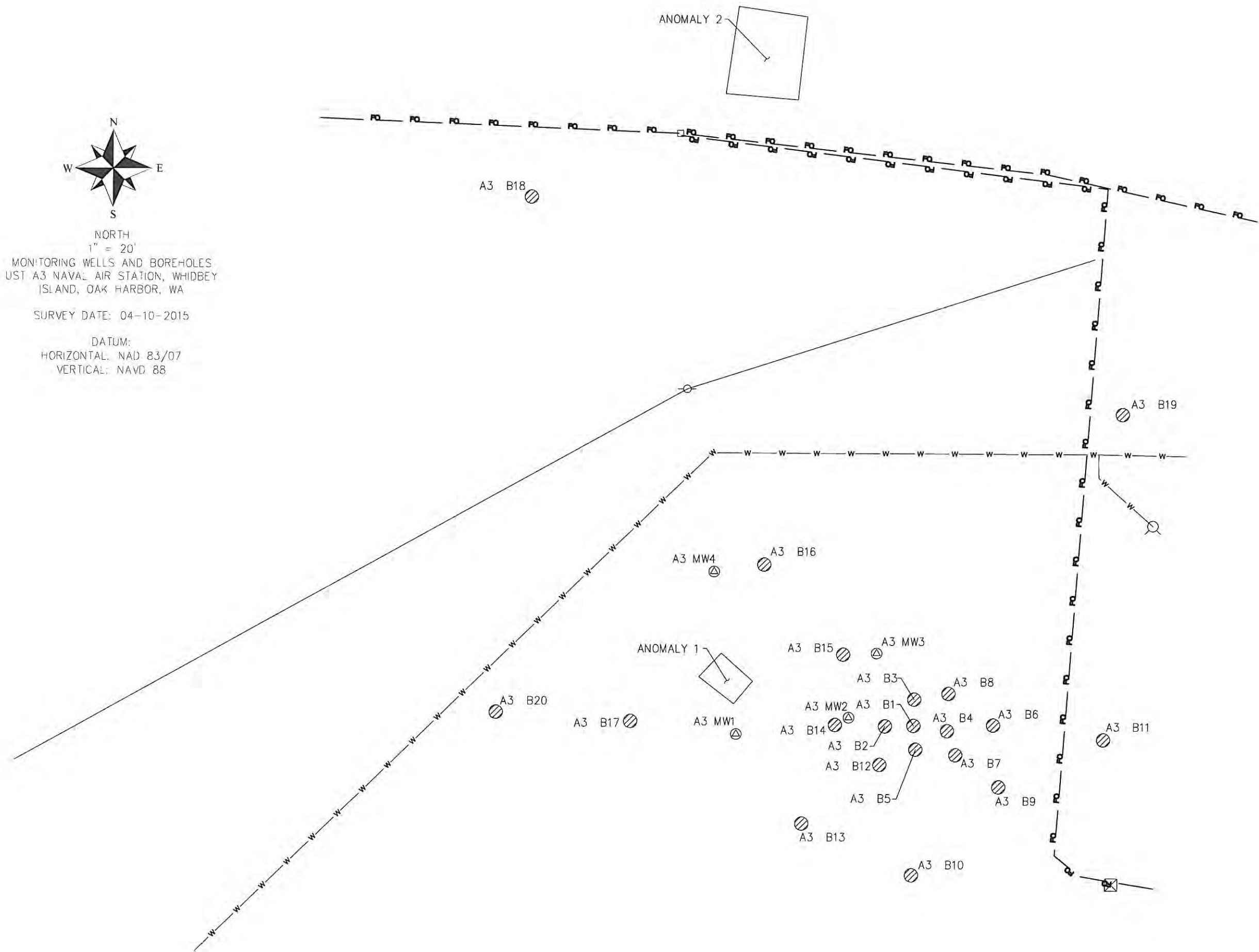
Pt.#	Northing	Easting	Elevation	Description
104	489051.70	1193692.35	149.69	A3 B1
105	489051.58	1193686.61	149.72	A3 B2
106	489057.01	1193692.45	149.65	A3 B3
107	489050.68	1193699.18	149.73	A3 B4
108	489046.90	1193692.80	149.80	A3 B5
109	489051.86	1193708.52	149.60	A3 B6
110	489045.83	1193700.94	149.83	A3 B7
111	489058.21	1193699.42	149.40	A3 B8
112	489039.40	1193709.73	149.98	A3 B9
113	489021.51	1193692.19	150.15	A3 B10
114	489048.97	1193730.77	149.62	A3 B11
115	489043.79	1193685.56	150.22	A3 B12
116	489031.89	1193669.85	150.10	A3 B13
117	489051.83	1193676.47	149.87	A3 B14
118	489066.04	1193678.01	149.12	A3 B15
119	489084.19	1193661.79	148.92	A3 B16
120	489052.45	1193635.00	149.67	A3 B17
121	489158.54	1193614.16	145.34	A3 B18
122	489114.89	1193734.12	148.06	A3 B19
123	489054.22	1193607.79	149.45	A3 B20

Notes:

1. Horizontal datum: NAD83/07
2. Vertical Datum NAVD 88
3. Horizontal coordinates were established by RTN (WSRN) GNSS Observations.
Constrained WSDOT Monuments: GP15020-41, GP15020-42, GP15020-43, and SLUG
4. Site Bench Mark: TNLS Point No. 1, MAG Nail With TNLS Washer, 156.286' (NAVD 88)
5. The location of the elevation of the PVC pipe was marked with a "V" notch on the North side
6. Elevations were established by differential levels

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NORTH
1" = 20'
MONITORING WELLS AND BOREHOLES
UST A3 NAVAL AIR STATION, WHIDBEY
ISLAND, OAK HARBOR, WA
SURVEY DATE: 04-10-2015
DATUM:
HORIZONTAL: NAD 83/07
VERTICAL: NAVD 88



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Appendix F

WASTE DISPOSAL INFORMATION

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HOUR EMERGENCY RESPONSE, CALL (877) 577-2669 ***

SHIPPING PAPER

Lading Manifest: 596179-15

SHIPPER / CUSTOMER NAVAL ATR STATION WHIDBEY ISLAND		DELIVERY DATE	JOB # 2098532
ADDRESS 1115 W LEXINGTON ST		POINT OF CONTACT Blaine Hardy	
CITY, STATE, ZIP OAK HARBOR WA 98278		PHONE # (360)257-1008	
CARRIER / TRANSPORTER BURLINGTON ENVIRONMENTAL, LLC		PHONE # (253)383-3044	
CONSIGNEE / FACILITY BURLINGTON ENVIRONMENTAL, LLC.		POINT OF CONTACT	
ADDRESS 20245 77TH AVENUE SOUTH		PHONE # (253)872-8030	
CITY, STATE, ZIP KENT, WA 98032			

HM	US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	Containers		Total Quantity	UOM
		No.	Type		
A	MATERIAL NOT REGULATED BY DOT	3	DM	1585	P
B	MATERIAL NOT REGULATED BY DOT	2	DM	899	P
C					
D					

Special Handling Instruction and Additional Information:

a). 66641IDW.SOI-00 - IDW SOIL - NON-HAZ - STAB01 (3) b) 66641IDW.WAT-00 - IDW WATER - NON-HAZ - WAT05 (4)

Placards Provided YES _____ NO _____

SHIPPER'S CERTIFICATION: "I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations." I also certify that all times listed above are true and correct.

(SHIPPER) PRINT OR TYPE NAME X Blaine Hardy	SIGNATURE X [Signature]	MONTH 5	DAY 28	YEAR 15
(CARRIER/TRANSPORTER) PRINT OR TYPE NAME X Joseph L Gortzler	SIGNATURE X [Signature]	MONTH 5	DAY 27	YEAR 15
(CONSIGNEE/FACILITY) PRINT OR TYPE NAME X Stephanie Hutchins	SIGNATURE X [Signature]	MONTH 5	DAY 31	YEAR 15

CONSIGNEE

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Attachment 1
LABORATORY ANALYTICAL AND DATA VALIDATION REPORTS
(Included On CD)

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